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Digital Composite Television

The revolutionary display and digitizing system for the Amiga®

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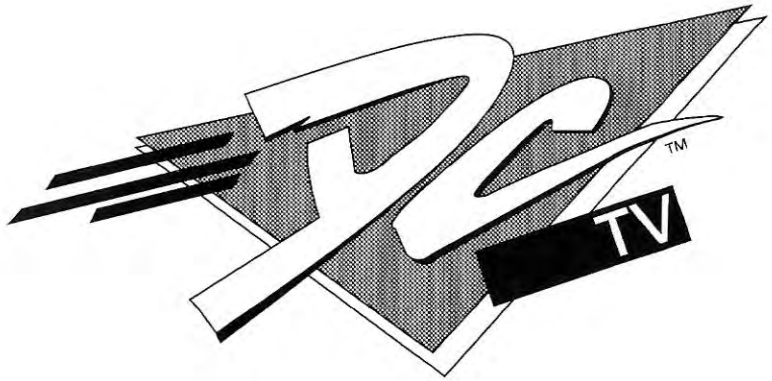

THE DCTV USER'S GUIDE

VERSION 1.0

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DCTV USER'S GUIDE

DCTV User's Guide
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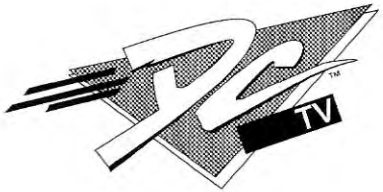


INTRODUCTION

INTRODUCTION

Congratulations and THANK YOU for your purchase of DCTV! In case you're wondering, DCTV stands for Digital Composite Television. DCTV opens up a new world of creativity for you and your Amiga by expanding the Amiga's graphics resolution to digitize, paint and display images in 24-bit resolution using a palette of over 16 million colors!

We hope that you enjoy DCTV and have as much fun using it as we did creating it! Now the creative process is in your hands. Let us know how you're using DCTV or any questions you may have in its installation or use. We look forward to hearing from you and, again, thank you for purchasing DCTV!

WHAT IS DCTV?

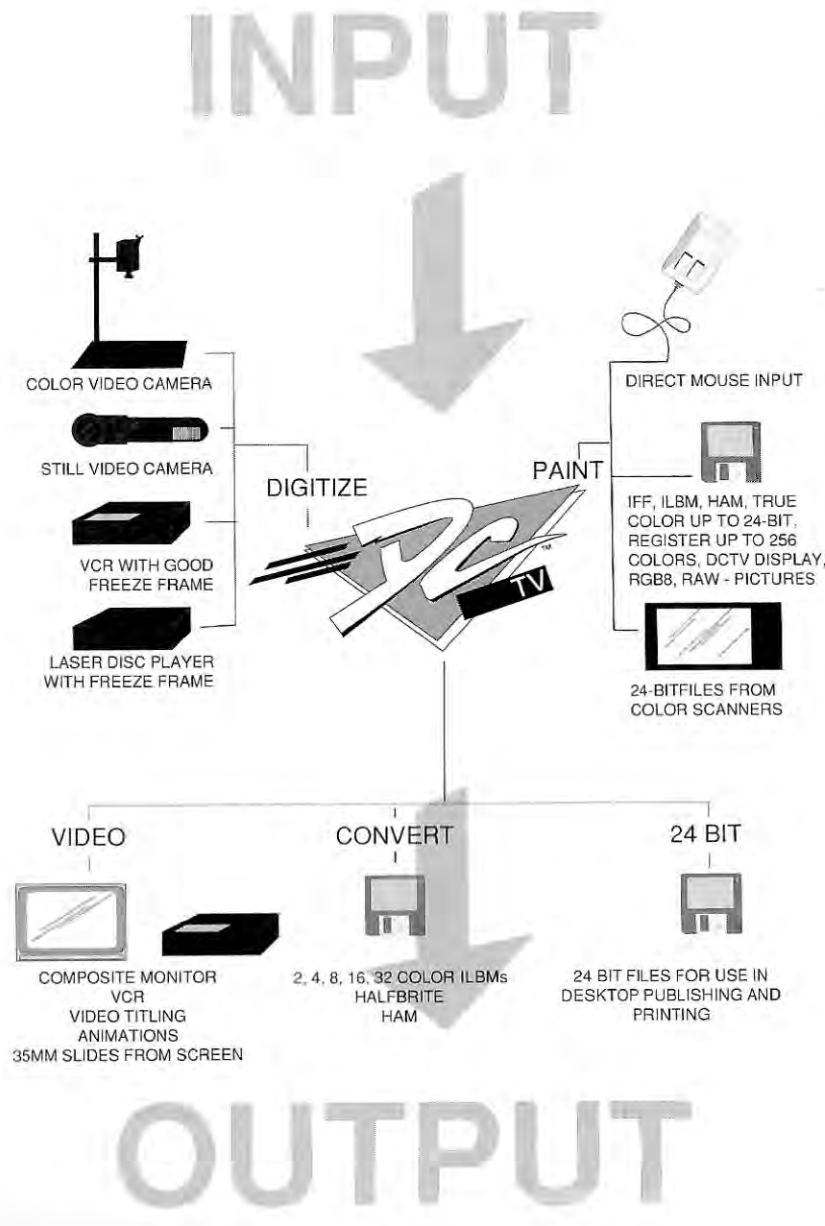
DCTV is a combination of hardware and software that uses the Amiga's normal high resolution display modes and interprets them in a radically new way. DCTV takes the digital video signal from the Amiga RGB port and converts it into full color composite video with all the vibrant color and quality of broadcast TV. Since DCTV uses the Amiga display as its frame memory, full color animations can be performed using popular 2-D and 3-D Amiga animation software.

DCTV's "slow scan" digitizer uses any color video source, such as a video camera, still video camera, VCR or laser disc, to capture a full color composite video frame in about 10 seconds.

DCTV's Paint software allows you to create and modify images using a full-featured true color video paint system.

DCTV's Convert software transfers images created by DCTV's digitizer or paint program into standard Amiga file formats compatible with all Amiga paint, video, or desktop publishing programs. DCTV accomplishes these amazing feats through the use of a new method of video display. DCTV creates and displays full color, full resolution NTSC video through a sophisticated process of video compression. DCTV connects to the RGB video port and creates an NTSC video signal from the screen data being output by the Amiga. DCTV uses the Amiga's display system to deliver a compressed video data stream that is then decompressed on the fly and converted into the NTSC video display. True color painting and animation are possible since the Amiga is simply displaying what it interprets as a normal high resolution display.

WHAT IS DCTV?



ABOUT THIS MANUAL

If the previous description of DCTV sounds complicated, then relax! Using DCTV couldn't be easier. You don't need to be a technical genius to set-up, operate and get spectacular results from DCTV.

In order to best understand how to use DCTV, however, you should have a basic understanding of how to use your Amiga. You should know how to use the mouse, start applications from WorkBench, copy your software disk, and perform simple WorkBench operations. If you need help in these areas, please review the user manual that came with your Amiga.

This manual will provide you with the information you'll need to quickly install and begin using DCTV.

Section 1 Section 1 provides the details on how to connect your DCTV hardware to the Amiga and how to install and run the DCTV software.

Section 2 Section 2 offers a quick tutorial on using the Digitize, Paint, and Convert programs included with DCTV.

Section 3 Section 3 provides a complete reference to each of the program's options.

Section 4 Section 4 contains the Appendices that cover areas that increase your understanding of DCTV's use and potential.

Appendix A includes information on trouble shooting any problems you might encounter with DCTV as well as how to obtain service from Digital Creations.

Appendix B offers information on working with NTSC video including how to select colors for later transfer to video.

Appendix C gives you an overview on using DCTV images with other Amiga software. The appendix also provides details on how to print the images created by DCTV while retaining the full 24-bit detail you'd expect.

Appendix D lists a reference for the keyboard shortcuts used to operate the DCTV software.

Appendix E gives you a quick visual reference and description of each of the tools found in DCTV Paint.

Appendix F contains information on adjusting the Tint of DCTV.

In addition to creating hardware and software we also use it! We realize that you, like most folks, are anxious to get up and running and don't want to take the time to read through a long manual! Guess what? We don't expect you to.

Take a deep breath and relax a second before plugging in your brand new DCTV. Please read through the next section on how to install and calibrate your DCTV hardware, as well as setting up the DCTV software. By taking these few minutes you'll save time and aggravation later and, even better, you'll have your DCTV operating that much faster.

WHAT'S IN THE BOX?

In addition to this manual your DCTV package should include the DCTV hardware, a program disk containing the DCTV software, and tutorial disks containing examples of images and an animation created by DCTV.

Also included is a registration card. PLEASE fill out the registration and send it back as soon as possible so that we can validate your warranty and let you know about any future enhancements or additions to DCTV.

CUSTOMER SUPPORT

If you have questions about DCTV and you can't find the answers in this manual, our Customer Support staff can help. If your question is not urgent please write to us at:

DIGITAL CREATIONS
DCTV CUSTOMER SUPPORT
2865 SUNRISE BLVD. SUITE 103
RANCHO CORDOVA CA 95742

When writing Digital Creations with a question please include the following information:

Which Amiga model you use
(500, 1000, 2000, 2000HD, 2500/20, 2500/30, 3000)

The amount of memory you have installed in your Amiga

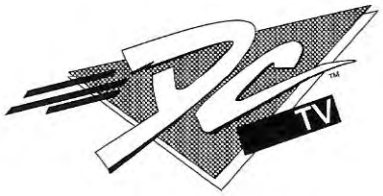
How DCTV is connected to your composite monitor

Any additional system configuration information that may help us answer your question

If your question is urgent call us at (916) 344-4825 Monday through Friday between 10 a.m. and 4 p.m. PST. Please have the above information handy when you call. Be at your computer with DCTV running if possible.

You can also fax your questions to us at (916) 635-0475. Please include the requested information about your system, your FAX number, and your address and voice phone number.

Before you call, please review the manual to assure that you have properly connected DCTV. Also check Appendix A, Troubleshooting, to try to determine the source of the problem. We have found that many questions can be answered simply by following these steps.



SECTION 1

INSTALLATION

INSTALLATION

HARDWARE REQUIRED

In order to use DCTV you must have:

1. An Amiga 500, 1000, 2000, 2000HD, 2500, or 3000
2. A minimum of one megabyte of ram
3. Workbench 1.3 or higher.
4. RGB monitor for the Amiga
5. A composite video monitor. (It may be the same monitor as the RGB monitor.)

In order to use DCTV's digitizer you will need:

1. A color video source which is capable of displaying a relatively still image for 6 to 10 seconds.

Optional Hardware

1. A minimum of three megabytes of ram are necessary to use all of the features available in the DCTV software.
2. A hard disk to increase storage and speed of storage.

INSTALLING THE DCTV HARDWARE

Before beginning installation of the DCTV hardware turn-off your Amiga, your monitor and any other devices attached to the Amiga.

THIS IS IMPORTANT! ATTACHING OR DETACHING HARDWARE DEVICES WHILE THE AMIGA IS ON COULD RESULT IN DAMAGE TO BOTH YOUR AMIGA AND DCTV! BEFORE BEGINNING INSTALLATION PLEASE IDENTIFY THE PROPER PARALLEL AND RGB PORTS ON THE BACK OF YOUR AMIGA TO WHICH YOU WILL INSTALL THE DCTV CONNECTORS. INSTALLING DCTV TO THE WRONG PORT MAY DAMAGE DCTV AND YOUR AMIGA.

```
Do not connect to Video Toaster, will damage DCTV permanently!
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Unpack the DCTV hardware and remove the fasteners used to wrap the Parallel Port and RGB Port cabling. Hold your DCTV with the DCTV logo facing you and the two cables facing down. Across the bottom of the label are the names of the six input/output/controls needed to install and setup DCTV. From left to right these are:

Video In — A standard RCA female connector used to provide the signal from your video source to DCTV.

Parallel Port — The cable and connector which must be installed to the Amiga's parallel port in order to digitize images.

RGB Port — The cable and connector which must be installed to the Amiga's RGB Port in order to display DCTV images. The cable includes a male 25 pin connector for attaching your Amiga monitor.

Tint Adjust — Factory set adjustment for tint.

Pixel Adjust — Control for calibrating DCTV's composite display.

Video Out — A standard RCA female connector used to send the DCTV image to your composite display.

Installing your DCTV involves the following seven steps:

1. With the Amiga turned off, unplug your Amiga's monitor or any other device, such as a SuperGen genlock, connected to the Amiga's RGB video port.

2. If you will be using the DCTV's digitizing functions, unplug any printers or other devices connected to the Amiga's parallel port.

3. Connect the female DCTV RGB Port cable to the Amiga's male RGB/video Port.

4. If you will be digitizing, connect the DCTV Parallel Port cable to the Amiga's parallel port. If you wish you may use a standard parallel switch box to connect both DCTV and your printer to the Amiga. All 25 lines on the switch box should be present. This allows you to switch between the printer and DCTV's digitizer without powering off the Amiga to change cables.

NOTE TO AMIGA 1000 USERS: You will need a standard 25-pin female to female gender changer to connect the male connector for DCTV's parallel port to your Amiga 1000's male parallel port.

5. Connect the Amiga's female monitor cable to the male pass-through on the DCTV RGB Port connector.

6. Using a standard video cable with RCA male connectors, plug the video cable into the DCTV Video Out female connector and connect the other end of the cable to the female NTSC Video In of your composite monitor.

If you are using a standard Commodore-Amiga monitor you could connect the cable to the RCA video port on the back of the monitor. This is the port colored YELLOW. With this connection you can switch between the standard Amiga display and the DCTV NTSC display using the video switch on the front of the monitor.

7. Using a standard video cable with RCA male connectors, connect the Video Out of the color video device you'll be digitizing from to the Video In connector on DCTV.

NOTE: If you had previously used a genlock connected to the Amiga RGB video port, you will be unable to connect the genlock while using DCTV. You may, however, purchase the DCTV-RGB converter which changes the DCTV NTSC video output into analog RGB video. The video is then re-mixed with other Amiga graphics on the Amiga's monitor. The DCTV-RGB converter will allow the DCTV video to be genlocked to other video sources when used in conjunction with our SuperGen Genlock products.

CALIBRATING DCTV

Pixel Adjust

Due to the differences between Amiga models, you will probably have to calibrate DCTV's pixel adjust to your Amiga's specifications before using it. To perform the calibration, begin by turning on your Amiga and booting it as you normally would.

After your Amiga is booted-up:

1. Make a copy of the DCTV program disk! This is an important step in safeguarding your DCTV investment. The DCTV disk is NOT copy protected. After you've copied it, put the original disk in a safe place away from devices (such as telephones or monitors) which generate magnetic fields.

2. Reboot your Amiga using the back-up copy of the DCTV program disk and open the disk window.

3. Locate the icon for the Pixel Adjust picture and show the picture by double-clicking (moving the mouse pointer over the icon and depressing the left mouse button rapidly two times) the icon.

4. The picture should display a 'mottled' greenish-gray image on your Amiga RGB monitor.

5. Turn on your NTSC composite display. If you've connected the DCTV video out to the video connector of a standard Amiga monitor, switch the video mode switch on the front of the monitor all the way to the left for composite video.

6. You should see the test picture displayed in full resolution on the composite display unless your DCTV requires calibration.

7. If the composite display image is fuzzy, displays noise, or does not display at all, locate the pixel adjust knob on DCTV and turn it until you see a display. Turn it the opposite direction until the display goes away, then turn it back to a center point between the two extreme settings. The goal is to have a crisp composite display which is easily readable.

SOFTWARE INSTALLATION

Floppy Users

In order to run the DCTV software you must have three items, the DCTV software, the DCTV font in your current font directory and the iffparse.library in your current library directory. The current font directory is on the disk used to start your Amiga. Unless you have a hard drive, we suggest that you start your computer with your backup copy of the DCTV program disk. This disk has the both the DCTV software and the necessary fonts and libraries and requires no further installation.

Hard Disk Installation

If you have a hard disk, we have included DCTVinstall that copies the DCTV font and iffparse.library to the proper directories on your hard disk. To initiate the installation, double-click the DCTVinstall icon on the DCTV program disk. Next, move the DCTV program by dragging its drawer to the partition of your choice.

NOTE to A2090 Hard Disk Controller owners. Please see the section on the A2090 in Appendix A, Troubleshooting.

SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

PAINT

CONVERT

BEGINNING WORK WITH DCTV

After you've installed and calibrated your DCTV there's only one thing left to do. Start using it! In this section we'll take you through your first DCTV session and look at the features available. Since some of DCTV's features require memory in excess of the one megabyte minimum, we'll cover only those features that everyone can use. In the reference section you'll find complete documentation for all available features in DCTV.

Before beginning, please make a backup of your DCTV Images disk. If you are not using a hard disk, you'll need two formatted disks for saving your work during the tutorial.

Before we begin, let's look at the key shortcuts available when using DCTV. While each DCTV program has some unique key shortcuts, the following keys can be used anywhere in DCTV.

NOTE:	Where a shortcut lists two keys, such as shift-F10 or Amiga-c, you must hold down BOTH keys to use the shortcut. Shortcuts referring to the Amiga key, such as Amiga-c, require that you hold down the right Amiga key (the *A* key to the right of the space bar), then press down the second key.
Mouse	Clicking the right mouse button will hide the pointer and menu.
F10	Cycle control panel through three positions: park, hide, show
Shift-F10 or Help	Make control panel completely visible
Space Bar or Escape	Abort operation

Two Option Requesters

Y	Responds YES in a yes/no requester
N	Responds NO in a yes/no requester
Return	Responds to the left (positive) requester option
Escape or Space Bar	Responds to the right (negative) requester option

One Option Requesters

Return or Escape	End requester

FIRST STEPS

Start DCTV by double-clicking the DCTV program icon from Workbench. In a couple of moments you'll see the initial DCTV welcome screen. This screen displays the DCTV logo and a list of choices on the left side. The welcome screen is displayed on the standard Amiga RGB monitor.

Fig 1. DCTV's Welcome Screen

The welcome screen choices are:

Options	Go to the Global Options menu Key shortcut: Amiga-O
Digitize	Go to the Digitize and Process menu Key shortcut: Amiga-D
Paint	Go to the Paint menu Key shortcut: Amiga-P
Quit	Exit the DCTV software Key shortcut: Amiga-Q

OPTIONS

Options allow you to set up some important parameters for your DCTV work. Let's prepare for our first session by setting up the options screen.

Fig. 2 Options

1. Click on the Options gadget to open the Global Options panel.

2. The MISC (miscellaneous) box contains two options, Workbench and Spare Page. Make sure the button next to Workbench is up so the Workbench will be closed if it is necessary to conserve system memory.

The Spare Page button cannot be used with a one megabyte Amiga. If you accidentally turn on Spare Page and don't have enough memory you will be warned as you exit the Options page. If this happens, turn off spare page by clicking Cancel on the Problem requestor and then clicking the Spare Page button so that it is in the raised (off) position.

3. The Quick Load/Save section of the Options page allows you to specify where DCTV will save a Quick Save file. The default setting is the system's T: directory. If you would like to have this file deleted when you exit DCTV you may set this option here.

If you are using Workbench 1.3 or greater and have not modified your system's startup-sequence, the T: directory will be in the Amiga's RAM drive. If you are using a one megabyte machine, you will need to redirect this file to a disk. Since Quick Save is a DCTV RAW file and can be a bit larger than 500K, the disk you specify must be nearly empty.

If you have less than three megabytes installed on your Amiga, redirect the Quick Save file by clicking on the drawer requestor in the area just to the right of T: and then backspace to delete. Enter the name of the drive and/or directory where you wish the Quick Save file to be stored. If you are using a machine with no hard disk and two drives, it's a good idea to put a blank disk in df1: and specify df1: in the Quick Load/Save requestor. After you've input the information, press return.

4. Look over the information in the Options menu. Click the Use gadget to go back to the DCTV welcome screen.

SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

PAINT

CONVERT

DIGITIZE

Let's leave the Welcome Screen and go to DCTV's Digitize page. Click Digitize and you will notice that the RGB screen has turned a greenish gray. The panel is a green and grey representation of the Digitize and Process page. This is a cue that DCTV is now displaying information for a composite display. Switch to the composite display when you see this type of image in your normal RGB Amiga monitor.

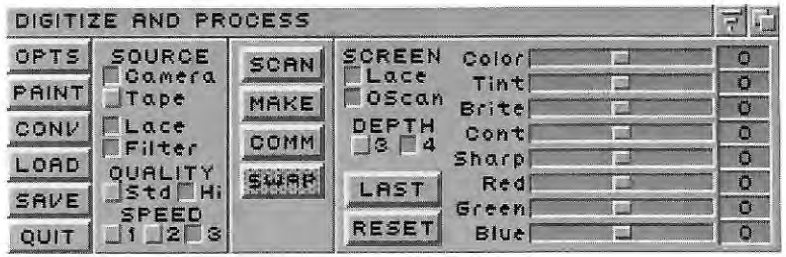


Fig. 3 Digitize and Process Page

The composite display should contain the normal high resolution Digitize and Process panel. As in the Welcome Screen, the Digitize and Process panel has a list of choices on its left side. In addition, this panel controls the type of equipment you digitize with and the processing of the data after it's been scanned.

You don't have to have a color camera to use and display DCTV images, but you will need one in order to digitize. Even without a camera you can use the Digitize and Process portion of DCTV to modify images created by DCTV Paint.

If you don't currently have a color camera, skip ahead to the next section on image processing while we cover the basics of camera set-up and digitizing.

DIGITIZING AN IMAGE

In order to digitize with DCTV you must have the DCTV hardware attached to both the parallel and RGB ports of the Amiga per the installation instructions in Section 1.

The key to getting quality images is lighting. If the lighting is poor or uneven the resulting image will reflect this. When digitizing with DCTV, be sure to have plenty of light. If you are using a standard video camera you may want to invest in an inexpensive video light to aid in your work. An even better solution is to purchase a copy stand with lights. Nearly all photography stores have this equipment.

Let's digitize your first image with DCTV. Make sure your color video source (camera, tape, laser disc, etc.) is plugged into DCTV's video in and is turned on. If you are using a color video camera, be sure to set the white balance per the instructions that came with your camera.

FROM THE DIGITIZE AND PROCESS PAGE

1. Select the source of the signal by clicking on the Camera or Tape gadget. Camera is used for color video cameras and tape is used for all other sources including still video cameras.

2. Click on SCAN to begin the digitizing process. The composite display will change to a real-time display of your camera's image. Use this display to focus or make any other adjustments needed to get the image you want.

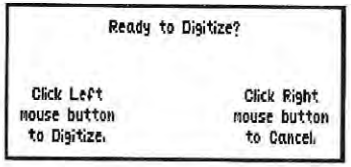


Fig. 4 RGB Digitize Requester

At this time DCTV is sending two displays. What the camera sees is displaying in composite and a menu is displaying on the Amiga's RGB monitor. The menu indicates that you should click the left mouse button to digitize or the right mouse button to cancel.

3. When you are pleased with the camera's image click the left mouse button to begin the capture. The image must be steady for approximately ten seconds. You'll notice during the digitization that a series of black lines move down the composite display . This is DCTV in the act of grabbing your image. After the image is digitized requesters will provide information on how DCTV is building your image. In a few moments your picture appears on the DCTV composite monitor.

Congratulations! You've just created your first DCTV image. Pretty simple wasn't it? If you aren't completely happy with the results, determine how you could adjust your environment to improve it. Simple things like moving the light or shading a hot spot that resulted from sunlight coming through a window will dramatically affect the final image. As in most things, a little practice will go a long way toward improving the images you produce with DCTV.

IMAGE PROCESSING

The Image Processing section of DCTV's Digitize and Process panel offers powerful tools to overcome some of the problems you might encounter when digitizing or creating DCTV images. The slider gadgets, grouped on the right side of the Digitize and Process panel, allow you to manipulate the images' color saturation, tint, brightness, contrast, sharpness or RGB levels.

For this section we'll work with the picture of the DCTV logo found on the Images disk in your DCTV package.

LOADING IMAGES

1. From the Digitize and Process panel click LOAD to bring up the DCTV file requester. The upper section is divided into two areas. The left side contains a list of devices/volumes, while the right contains a list of the files contained on the device/volume you have chosen.

2. Click on the device in the left side of the requester that contains the DCTV Images disk. On the right side of the requester a list of files and directories on the Images disk will appear.

3. Click on the Tutorial directory (appears on screen as (dir) Tutorial) and then click on DCTV-Logo. You'll notice that the drawer and file area at the bottom of the requester now contains information on where the file is located and its name.

4. Click on Load to retrieve the DCTV-Logo file.

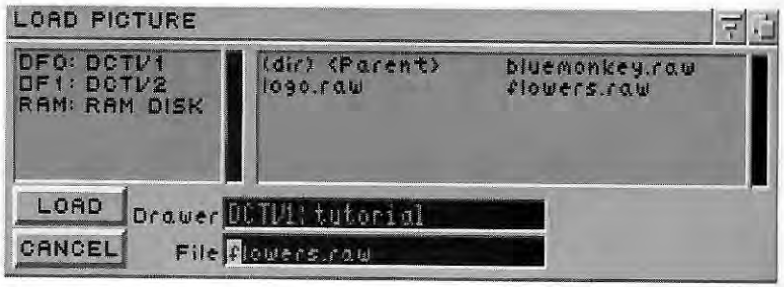


Fig. 5 Load Requester

PROCESSING

By now you should have the DCTV logo on your composite display. This image was scanned using DCTV and a color video camera with a standard video light. No processing was done to the image after it was digitized. While the image looks fairly good, we can do several things to improve it.

1. The grays in the picture are quite bright. Locate the brightness control (Brite) in the processing menu and move the slider to the left until a -4 appears in the window to the right of the control.

2. Did you notice that when you moved the Brite slider the MAKE and COMM (Commit) buttons began flashing? This is DCTV's way of telling you that you have made changes in the picture that are not displayed or contained in DCTV's image buffer. DO NOT CLICK THE COMM BUTTON UNTIL YOU ARE SURE YOUR IMAGE IS COMPLETE! COMM will modify the data in the DCTV buffer and your original image will be erased.

   Now click MAKE to display the difference a -4 brite setting made in the logo. The grey background should be darker and exhibit less glare. The decrease in brightness, however, muted the image's color.

3. Locate the Color control and move it to the right until a +8 appears in the display box to the right of the control and then select MAKE to display the changes. The colors are much brighter and should approximate those on the DCTV package. Use your package to compare the DCTV composite output with the printed image.

4. When you've finished making changes and are pleased with an image, select COMM to commit the image to the DCTV buffer. This insures that the image, with your modifications, is ready for use

from DCTV Paint or Convert. Click on COMM and then yes on the COMMIT requester to commit your image to the DCTV buffer.

When processing your work, it's better to make small changes to the image one step at a time. In this way you can determine what produced the effect you wanted or didn't want. If you change the settings for Color, Tint, Brite and Sharp at the same time it's nearly impossible to determine which of the items produced what effect. Experimenting with the controls, and the experience you gain, will assist you in determining what settings are needed to produce the desired results.

SAVING THE IMAGE

Let's save the modified Logo so that we can later convert it to a standard Amiga file using DCTV Convert.

1. Click on SAVE on the Digitize and Process panel.

Fig 6 Save requester

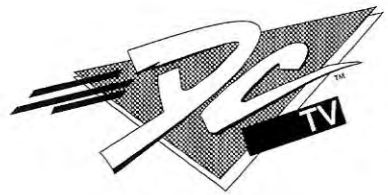
2. The SAVE PICTURE requester will appear. Note that the SAVE requester uses the same directory and file information as the LOAD requester.

3. Insert one of your blank formatted disks in your drive and choose the drive/volume from the devices and volumes contained on the left side of the requester. If you are using a hard drive, select your hard disk from these devices and choose the directory you wish to store the file from the directories shown in the right side.

4. The name of the volume you selected should appear in the requester's Drawer text entry gadget. To change the name of the file, click to the right of the DCTV-Logo name in the File text entry area and backspace over the existing name. An Amiga-X will also clear this area. Type in the name of your new file but **do not** hit return.

5. When we load the file later we will not need the RAW data so select 24 Bit in the SAVE AS area at the bottom right of the requester. When you're done, select SAVE and your image will be stored on your formatted disk.

That's it....you have now learned how to Digitize, Process and load and save your images with DCTV. Let's move on now and learn how to work with DCTV paint.



SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

PAINT

CONVERT

PAINT

Painting, with DCTV, is unlike painting in any other environment. While some idioms are the same - the paintbrush, the canvas, and the colors - the medium is different. The medium is video. Everything you do in DCTV, from drawing a rectangle to tinting an image, is translated into a video waveform. Although you view the images in a pixel-oriented universe - your monitor - DCTV frees you from the constraints of individual pixels.

DCTV's universe is the NTSC universe with over 16 million. The rules which govern DCTV are the same rules that govern broadcast television. Terms like *Chrominance* and *Luminance* will dominate our discussion of the DCTV paint tools. These terms (Chrominance, or the color component of a signal, and Luminance, the brightness of a signal) are central to the operation of DCTV, as well as video.

These tutorials will guide you through some operations available to you in DCTV Paint, and help you to understand painting in the NTSC environment better.

BASIC PAINT TOOLS

Computer artists, with traditional art experience, describe painting with DCTV as much more like oil paints or water colors than anything they've ever used on a computer. Let's look at the basic DCTV Paint environment.

1. Start DCTV
2. Choose Paint from the Welcome Screen
3. Click on the Brush tool in the Tool Bar.

When you first enter DCTV Paint you will see the most powerful set of tools at your disposal on any consumer priced computer. The Paint panel is made up of two panels. The top half is the palette panel and the bottom half is the brush panel. Either of these may be on screen with another panel at times.

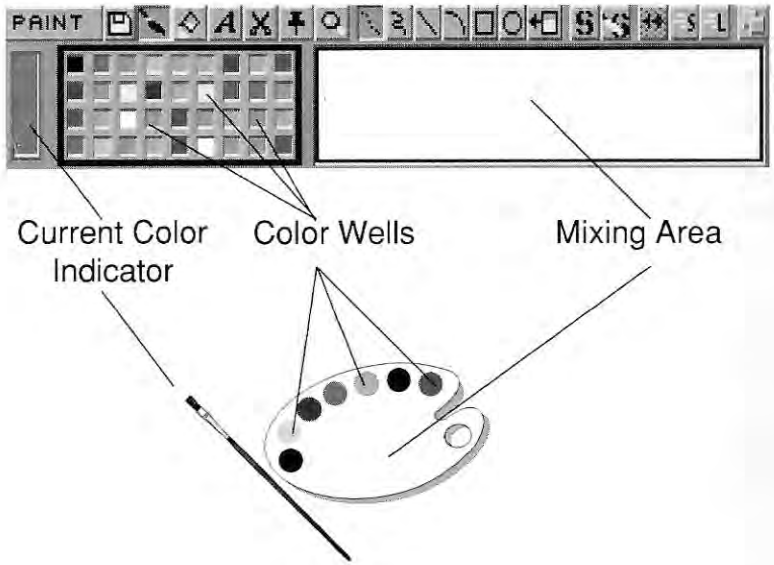


Fig. 7 Palette Panel

The palette panel is divided into three sections. On the left is the current color, in the middle is the color wells area, and the mixing area is on the right. These are similiar to the traditional palette and brush as in the illustraion.

1. Using the left mouse button, click on a color in the color wells area. Now click on another color well. Notice how the current color area on the left keeps changing to the new color that you've chosen. Choose the brightest red from the color wells.

2. Move your cursor into the mixing area, the white area to the right of the color wells. Press and hold down the left mouse button. Move the mouse around. Sketch something. This area can be used as a scratch pad as well as a mixing area. Try another color. Now try painting into the black area or the "canvas" of DCTV Paint. Experiment.

3. Move to the lower panel. This is the Brush Panel. Let's change the size of the brush. Click, hold, and drag the slider in the Size gadget. Move it all the way to the right. The size indicator should now say 20. Let's examine the different brushes. In the mixing area click the left mouse button once. You should now see a bigger area of paint from the brush. Choose the square brush under the round brush. Click this one on the white area. Try the other brushes. Try some other sizes. Experiment.

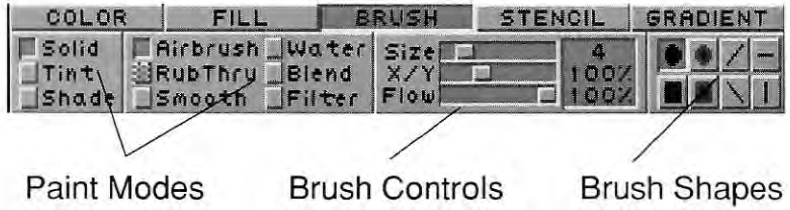


Fig. 8 Brush Panel

4. Pick the solid square brush and the whitest color from the color wells. Paint out all the scribbles in the mixing area. This area should now be all white.

5. Choose the bright blue.

6. The flow rate allows DCTV users to create very subtle effects. With the Flow still set to 100%, single click in the mixing area. Change the Flow to 35%. Now click three times, overlaying a part of the blue each time. Notice how the color builds.

So far we've been using "airbrush" and "solid" for the brush attributes, but let's use the mixing area as intended.

1. Choose the round solid brush. Set the size to 10. Set flow rate to 100%. Choose the red. Make a smear of red about the size of a nickel in the mixing area.

2. Do the same with blue and yellow forming a "triangle" of smears.

3. Set the flow to 50%. Choose blend from the left half of the brush panel. Place the cursor over the red smear. Hold down the left button and slowly move it through the yellow and blue and into the white. Try it again starting over another color.

It is as if the "paint" and the white background are wet. Notice the wonderful shades and colors you created using this method. More about colors soon.

Let's examine one other powerful feature of DCTV Paint. Until now there has always been an endless supply of "paint" in computer paint programs. DCTV's Watercolor mode changes that.

1. Choose the gadget marked Water.

2. Set the flow rate for 65%.

3. Pick yellow for the color.

4. Go to the black canvas area. Click and hold the left mouse button down. Slowly drag the mouse. Notice how the "paint" fades out just as if the brush was going dry.

5. Try other colors, sizes, shapes, and flow rates.

COLOR SELECTION

We'll continue this tour of Paint in the Color panel. If you're not already in Paint mode, click on the Paint gadget. We'll leave the options as they are. Click on the Brush tool (second from the left, in the Tool bar) to go into Paint mode. From there, click on the COLOR attribute selector. It's the gadget on the left, in the middle row of gadgets. This will bring up the Color panel, which allows you to create the color of your choice.

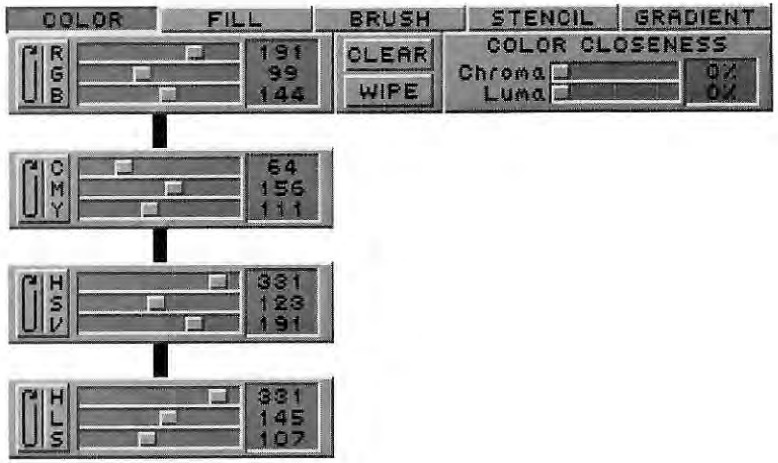


Fig. 9 Color Attributes

You might want to refer to the Reference section of this manual for an explanation of how the Color Selector works. Right now, though, experiment. Move the three sliders through their steps and observe the results in the Color Preview bar, to the left of the Color Wells. When you arrive at a color you like, you may want to replace a color in the Color Wells with the color you have created. Position the cursor over that well, hold down the shift key, and click the left mouse button. This is called "shift-clicking." When you "shift-click" over an area that *may be assigned* color, like a Color Well or gradient tab, you replace its contents with the current color. If you

shift-click over an area that *displays* color - like the screen, the gradient preview bar, or the mixing area of the palette - you will pick up or replace the *current* color with that color.

Now that you know how to create a color, it's time to start get creative.

TINT AND SHADE

For this example, we'll need to load a picture from the Images disk. Go to the Paint Options panel. (If you're already in Paint, click on the Options gadget - it's the first gadget on the left of the Tool bar,

and it's shaped like a floppy disk.) Click on LOAD. The LOAD PICTURE requester will appear. If you haven't exited DCTV since the previous tutorial, select the picture "FLOWERS" from the Images drawer. Do this by double clicking on the name "FLOWERS", pressing RETURN, or by clicking on LOAD. If you have exited DCTV since the last tutorial, then please see the Digitize tutorial regarding loading pictures. Once the picture has loaded, click on the Brush tool (second from the left, on the Tool bar) to go into Paint mode.

You'll be looking at a bouquet of flowers, all of which are the same color. We're going to turn this into a multi-colored bouquet. Make sure you have the Brush panel selected, and click on the Tint option. The default brush size is 4, which is a little large for what we're going to do. Locate the Size gadget in the lower section of the panel, and move the slider to the left until you have a brush size of 2.

Pick a color - any color - and click on the Dotted Freehand Line tool.

Then, move your cursor to any flower, press the left mouse button, and fill in the flower. You'll notice that only the *color* of the flower changes. All details - the shadows, the edges of the petals - remain intact. This is because you are altering only the Chrominance, or color component, of the image. The *shading* of the image - areas of lightness and darkness - is controlled by the Luminance portion of the signal. This technique, by the way, is similiar to the method used to colorize black-and-white movies.

Try this on another flower, using a different color. You'll notice that no matter what color you select, the definition of the flowers will remain the same. You can change the amount of color you tint with by changing the Flow setting. A setting of 100% will give you the maximum tint for that color. Reducing the Flow setting will reduce the amount of color you apply.

Now, click on the Shade gadget. Again, pick any color, and fill in the flower of your choice. The first thing you'll notice is that all detail is lost when you do this. Shade works by altering the Luminance of the colors to match the luminance of your brush color. Note that the *colors* of the image do not change; only the *shade* of those colors changes. What you have done is alter the brightness - the luminance - so that it is the same everywhere you have painted.

CLIPS

One way of modifying images is by using a cutting and pasting technique we call CLIPS and TACKS. Just as in the real world you "clip" something out of a picture and then "tack" it down someplace else.

You may not think there are enough flowers in this picture. You can easily add more, if you'd like. DCTV Paint offers you several different ways to make clips. You can cut rectangular areas, elliptical areas, or areas of any shape. Because the flowers in this picture are irregularly shaped, we'll use the Continuous Freehand Line tool to make a freehand clip. First, click on the Continuous Freehand Line tool. Then, click on the Clip tool.

Move your cursor to the flower of your choice, press the left mouse button, and draw a line around the flower. When you are satisfied with the shape of the outline (this shows the area you'll be clipping) release the mouse button. If you want to start over, you can hit the space bar to abort the clip.

Once you have completed the clip, you will see a flowing marquee around the clip. Before we stamp this clip down anywhere, let's resize it. Click on the RESIZE gadget. You'll see a marquee in the shape of your clip, attached to your cursor. (A marquee is similiar to the moving lights around a sign on a theater.)

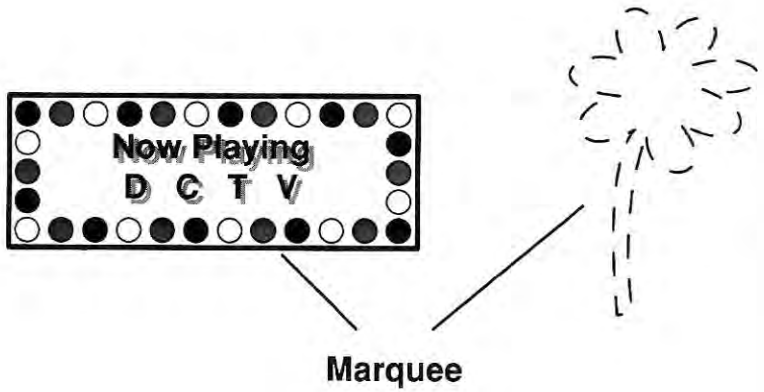


Fig. 10 Marquees

Press the left mouse button, and move the cursor in any direction. The clip will be stretched (or shrunk) in the direction you move. If you move horizontally, the width of the clip will change. If you move vertically, the height will change. Move diagonally, and both the width and height will change. You can resize symmetrically by holding down the ALT button while you move the mouse. When you do this, both the height and width will change at the same rate. If you're unhappy with the change you've made, click on the RESTORE gadget. This will return your brush to its original condition.

Once you are happy with the size of the clip, it's time to stamp it somewhere. Click in the middle of the clip, hold down the left mouse button, and move your cursor to the area where you'd like to put the clip. You'll notice that the clip is redrawn every time you pause in the same place. This is to help you position it. Once you're happy with the position of the clip, release the mouse button. The clip will be drawn in position, but it will *not* be pasted down yet. You can do this by either clicking anywhere outside of the clip, or by clicking on the Paste gadget.

Clips, by the way, are subject to the rules of the Paint mode you have selected. If you are in solid mode, the image of the clip will be tacked into place. If you are in Tint mode, however, only the *chrominance* portion of the clip will be tacked into place. The colors of the clip will be transferred to the region underneath. If you are in Shade mode, the *luminance* of the clip will be transferred.

If you want to be a bit more realistic, you might try rotating the clip a little bit. Click on the ROTATE FREE gadget. Again, a marquee will be attached to your cursor. Holding down the left mouse button, move the cursor up, down, left, or right. The clip will rotate in the direction of your movement. When you're satisfied with the degree of rotation, release the mouse button. The clip will be redrawn in its new position. Of course, you can do more than just resize and rotate your clip. Try the BEND X, BEND Y, and SHEAR modes to mold your clip into different shapes.

Our flowers, you'll notice, are sitting on a dull table. With DCTV, we can easily polish the table and give it a mirror-like finish! Try this: Click on the Continuous Freehand Line tool. Then, click on the scissors (Clip) tool. We're going to make a clip of the bottom of the vase. If you only have a megabyte of memory, you might have a little trouble with this operation. If so, make sure you are working without overscan and interlace. You should be able to work with a small clip.

1. Start your clip at the bottom of the vase, and "frame" an area which - when flipped upside-down - will give us the reflection of the vase in the table.

2. Once you've made your clip, click on the Flip Y gadget. This turns the clip upside-down.

3. Click on the Resize gadget and make the clip a little shorter. (This will make it look more like a reflection.)

4. Click on the Brush Mode gadget (in the middle row of gadgets) and click on the Shade button.

5. Now, click in the center of your clip, and - holding the left mouse button down - "drag" the clip to about where it should be positioned for a reflection. Release the mouse button, and the clip will be redrawn.

6. Repeat the click-and-drag operation until the clip is just where you want it. Each time you pause, the clip will be redrawn. Once you've found the proper location, click anywhere *outside* the clip, and it will be drawn into position. Presto! Instant reflection!

STENCILS AND GRADIENTS

So far, we haven't done anything terribly unnatural to our flowers. Now, by using Stencils, we can begin to defy the laws of nature. The easiest way to perform these operations on individual flowers is to protect the surrounding area, much the way you'd use masking tape. Click on the Stencil attribute gadget (in the middle of the Attribute Bar) and then select the Stencil Draw tool. (It's an "S" with

a brush through it.) Now, select a Stencil color. This color will help you to distinguish the Stencil mask against the image, so pick out a color that contrasts well with your image.

We'll be doing fairly detailed work, so make sure you have a small brush. A size of 2 or 3 should work well. Make sure the ADD gadget is selected on the Stencil Panel. You can select TRANSPARENT if you'd like. This will allow you to see the area under the stencil. Click on the VISIBLE gadget so you can see the stencil as you create it. We'll be creating this stencil mask in Dotted Line mode, so make sure that gadget is selected.

What we want to do is create an area around our flower which will be protected. Start by "painting" the area around the flower. Don't worry if you "paint" the stencil somewhere you didn't intend. We can clean that up later. Keep painting the mask until you have created a rectangle around the flower. Now, if you have painted over the flower with the stencil, select the DEL gadget. When you're in this mode, everything you paint is *removed* from the stencil. Paint over the unwanted parts of the stencil, and they'll be removed.

Once your stencil is in place, click on the USE STENCIL tool. (It's to the left of the Stencil Draw tool; it's a large S.) This will turn the

stencil on, protecting the area underneath it. Now, click on the GRADIENT attribute gadget. This will bring up the Gradient panel. There will be two tabs already in place, but we're going to

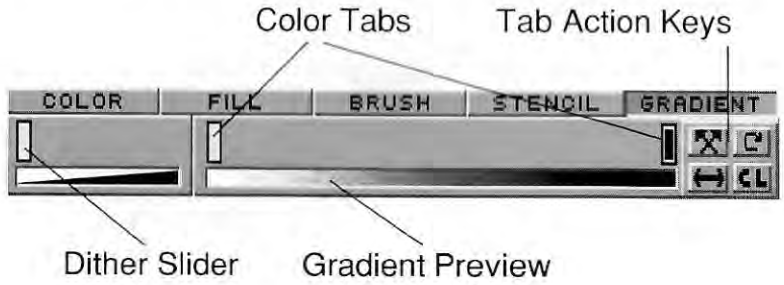


Fig. 11 Gradient Attribute Panel

use our own colors. Choose one of 36 pre-defined colors from the color wells. You can choose one of these by clicking in the appropriate well, or you can define your own colors with the Color controls from the Color panel. Once you have a color, position your cursor over one of the tabs above the Gradient Preview bar. Hold down the shift key, and click on the tab. It will change to the current color. You may place additional tabs anywhere along the bar by clicking the left mouse button at the desired location. Get as wild as you'd like - this is *your* flower, not nature's!

Once you have your color tabs in place, click *in* the gradient preview bar. There will be a slight delay as the gradient is calculated. After this, the gradient will be displayed in the preview bar. If it's not exactly what you want, move the tabs or change their color. (You can remove a tab by "dragging" it out of the panel.) You can use the four gadgets to the right of the preview bar, if you'd like. These gadgets, in clockwise order from top left, will reverse the position of the tabs, rotate through a set of predefined gradients, clear all tabs, or space your tabs evenly.

When you are satisfied with the gradient, click on the FILL attribute gadget. The gadget at the far left, second from the bottom, controls the Fill attributes. Click on it until it says GRADIENT. Then, you can select the direction of the fill with the bottom gadget. Your choices are Horizontal, Vertical, Linear (any angle), Border, and Radial. Choose Border. This will cause the gradient fill to follow the contours of the "container" we define for the fill. Fills, by the way, can be used in Solid, Tint, or Shade mode. Select Solid (from the Brush panel) for this operation.

Click on the Draw Filled gadget. (It looks like a partially-filled

container with an arrow coming out of the left side.) Then, for the first fill, click on the Rectangle gadget. Then, move up to the flower

of your choice. Click somewhere above and to the left of the flower, hold the mouse button down, and drag out the box until it surrounds the flower. Release the mouse button, and the gradient fill will be drawn. Notice that the fill does *not* appear in the areas protected by the stencil mask.

We really didn't have to use a stencil for this, but it did help keep the operation neater. There's another option: irregular-shape fills. We'll try this now. Click on the Continuous Line tool. Move to the flower of your choice. We'll use this tool to create a border around the flower; the fill will appear inside that border. Hold the left mouse button down to start the shape, and trace a line completely around the flower. Remember, you can abort this operation at any time by pressing the space bar. When you have traced completely around the flower, release the mouse button.

This time, the colors in the gradient bend to follow the contours of the flower. Why? Last time, we drew a rectangle. The gradient followed the contours of that shape, which happened to be straight up and down, and perfectly horizontal. This time, our shape is rounded. Because we selected Border as the fill direction, the gradient fitted itself to the shape of the border.

Because we did this in Solid mode, we completely erased the old flower. We could have used Tint mode, which would have retained the characteristics of the flower, changing only the colors. We also could have reduced the Flow rate, which would have made the colors we were laying down more transparent.

While we're working in Filled Draw mode, let's add an effect: Highlight. Locate the Highlight controls on the right side of the Fill panel. There's a gadget to the far right which will cycle you through the Highlight modes. Click on it until it says Point. This will allow us to create a fill with a highlight emanating from a single point. Now, pick a color that's a little darker than the color of the flower you want to fill. Again, we'll be working with Continuous Line draw, in Fill mode. Once again, trace a line completely around one of the flowers. This time, when you release the mouse button, you'll see a line attached to your cursor. This line stretches from the center of the filled region you've just created. Wherever you click next will be the "hot spot" of the highlight. Try clicking somewhere *inside* the flower. Notice how the spot where you clicked becomes the most

opaque region of the fill, and the color becomes transparent as you get further from that point.

If you go back to the Gradient panel, you will notice a small slider to the left of the Gradient Preview bar. This is the Dither slider. Dither controls the way colors change in a gradient. Instead of a smooth transition, dithering "scatters" small areas of color to the left and right of the area of change. Note that dither, in the DCTV environment, has an entirely different meaning than dither does in the RGB world. Dithering is used to make color transitions seem smoother, or to fool the eye into believing that there are more colors on screen than the system can display. DCTV, with more than 16 million colors, is capable of making any "NTSC-legal" color transition with perfect smoothness, and its palette is more than sufficient to give you as many colors as you need. You are more likely to use Dither, in DCTV, to achieve an artificial effect.

Let's try a dithered gradient. Move the dither slider one-quarter of the distance to the right, then click inside the preview bar to create the gradient. You'll notice that the gradient has become coarse, granular. It will become more so if you increase the amount of dither.

Of course, there are other types of fills available to you. There are Pattern fills, Warp fills, and, as we've seen, Highlight fills. You could use a Warp fill, for example, to "wrap" the image of your favorite person around the flower, or you could use a Pattern fill to create your own Art Deco kind of flower. You'll find information on the different kinds of fills in the Paint Reference section.

ADVANCED PAINT: RUB THRU, STENCILS, AND COLOR CLOSENESS

In this section, we will be covering options which are only available to you if you have 2 megabytes or more of memory. To prepare for this exercise, you will need to activate the Spare page. Go to the options page, either by clicking on the Options icon, and then selecting OPTIONS from the gadget panel, or by the keyboard shortcut Right Amiga-o. On the Options panel, under the heading MISC, you will find a gadget labeled "Spare Page." Click on this gadget, and the spare page will be activated. After you have done this, return to Paint mode.

We are going to emulate the "Chroma Key" effect that television stations use to put the weatherman in front of a map. To do this, we'll need an image surrounded by a single-color background. If you'd like to create your own image, go right ahead. The Digitizing Tutorial will guide you through this process. If not, you can use an image from the Images disk. The only requirement is that the object (or person) be surrounded by a single color.

We'll keep this example simple, and use the same picture of the flower vase, turning our single bouquet into a *group* of bouquets. Click on the Swap Page gadget (shaped like an arrow pointing both to the left and right) to get to the spare page. Once there, load the *FLOWERS* image once again. We don't really want the vase to be in the same position, so we'll first move it. Click on the Rectangle tool, and then click on the Clip tool. (Make sure that you're not in Fill mode. The Fill Mode button should be *out*.) Drag out a rectangle that fully surrounds the bouquet and vase. Then, click on a color in the Color Well area (you may have to click on the Color Panel gadget first). This will be the background color. Now, clear the screen by holding down the SHIFT key and pressing the "k" key. The screen will be cleared to the color you chose.

Choose a position for the clip, and paste it down by either clicking on an area outside the marquee, or - from the Clip panel - by clicking on the Paste gadget. Now, switch back to the Main screen by clicking on the Swap Page gadget. We're going to "Rub" the image on the spare page through to the main page, but we'll want to protect part of our image first. We do this by creating a stencil mask, and by using Color Closeness.

Color Closeness lets us specify a range of color that will be affected by our stencil mask. Hold down the SHIFT key, and click on the background to select that color. Then, bring up the Stencil Panel by clicking on the gadget (middle row) labelled STENCIL. You'll notice a column of buttons labelled Visible, Transparent, and Use Closeness. Click on all three. This will allow you to see the stencil as you draw it, but will keep it transparent so that you can see what's under it. Using Closeness will allow us to create a stencil that does include the background. To set the Closeness range (which allows us to include colors that are *close*, but are not *exactly* our color of choice, click on the COLOR mode gadget. When the panel comes up, you'll notice a set of sliders on the lower right portion labelled Chroma and Luma. These settings let you determine how much the chrominance and luminance can vary from the chosen color but still be *considered* the chosen color. Move these sliders to 20%.

Click on the Stencil Draw gadget. To create this stencil as quickly as possible, you'll want to be in Filled Rectangle mode. Click on the Rectangle tool, then click on the Filled Draw tool. You might want to flip to the Brush panel at this point, to make sure that you have Solid and Airbrush selected as your application modes. Once you're all set up, drag out a rectangle that surrounds the flowers and the vase. When you've done this, click on the Continuous Line tool. We'll want to protect the table, too. Choose the table color, then trace a line around the table. When you're done with this, invert the stencil by ckicking on the Invert stencil button on the Stencil Panel. Click on the Stencil On gadget to activate the stencil.

We're going to use another kind of fill to bring the image from the spare page over to this screen. Click on the FILL mode gadget. Locate the Mode gadget on the far left. If it doesn't already say SOLID, click on it until it does. Below this gadget is the Fill Type gadget. Click on it until it says Rub Thru. Now, click on the Rectangle Draw gadget. Drag out a rectangle that will roughly cover the area our image occupies on the spare page. You'll see that image appear where you've drawn the rectangle. Because we've protected our original image with a stencil mask, that image is not covered up.

Let's add some text to our image. Go to the spare page. Select black from the color well area, and clear the screen to this color. (You can do this with the *Shift-k* keyboard shortcut, or - from the Color Panel - hold down the Shift key, and click on Clear. Now, clear out the stencil mask. Bring up the Stencil Panel (click on the Stencil gadget, middle row) and click on the Clear gadget. Next, select a light color. Now, go into Text mode by clicking on the Text Tool. (It looks like an italicized *A*.) This will bring up the Text panel, where you can choose a font, font size, style, and attribute. Make your selections, then type a caption in the Text area. (It's just below the Tool row.) When you hit RETURN, the text you've typed will be available to you as a clip.

To activate the text clip, click on the Stencil On gadget, and click on the Paste tool. You'll see a marquee centered on the screen, with your text inside. Position the text as you'd position a clip, and paste it by either clicking outside the marquee or by clicking on the Paste gadget on the Clip panel. You'll want to place the text in a position that will look good when you rub it through to the other image.

We'll use the Gradient Fill feature to create a nice effect for the text. Bring up the Gradient panel. Refer to the instructions earlier in this tutorial for creating a gradient. Bring up the Fill panel and select Gradient Fill mode. Now, turn the stencil mask *off* by clicking on the Stencil tool. (The stencil is off when the button is out.) Select Filled Rectangle mode, and drag out a rectangle that surrounds the area where the text was. Once the rectangle is drawn, turn the stencil mask back on. Now, clear the screen and turn the stencil mask off.

If you've done this correctly, you will have text which is colored by the gradient you created. You did this by drawing the gradient *over* the text, and then protecting that area while the screen was cleared. Now, we'll rub this area through to the main image. First, we'll protect the area *around* the text, so we don't rub that through. Bring up the stencil panel, and click on the gadget labelled INVERT. This will "flip" the stencil, so that only the text is unprotected. Then, switch to the main image (click on the Swap Page tool) and rub through the spare page just like you did in the previous example.

There are many variations on these themes. One of the more interesting pictures floating around the offices of Digital Creations has a room with 4 programmers sitting in it. That may not seem too unusual, until you notice that they are all the *same* person. Randy - the subject of this unusual study - created this image by first digitizing the room, then digitizing himself in four different positions. One by one, he rubbed through an image of himself, being careful to mask off the areas he didn't want to cover. With a little practice, you'll find it easy and fun to achieve effects worthy of a professional video studio. The only real limit is your imagination.

Paint is just one piece of the puzzle, and we've only covered some of that piece in this tutorial. The best way to learn how to use the tools of DCTV is to *use* them. We've seen a lot of spectacular images created with DCTV and Paint, and we know that what we've seen only scratches the surface. This is a new world, and *you* are the explorer.

SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

PAINT

CONVERT

CONVERT

Now that you've learned how to Digitize and Paint with DCTV there's only one skill left... converting your images for use in other Amiga programs or to share with friends who don't have DCTV.

To complete this tutorial you should have the revised DCTV logo you created during the digitize tutorial.

1. Go to the Digitize and Process menu and load your revised DCTV logo.

2. Select CONV from the menu to go to the Convert menu.

3. The Convert menu displays on the standard Amiga RGB display. When you selected CONV the composite monitor went blank. Switch to the standard RGB Amiga display.

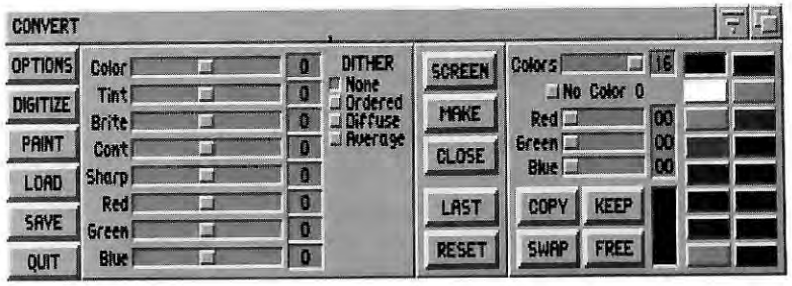


Fig. 12 Convert Page

4. Notice that the Convert screen is blank and the MAKE button is flashing. Click MAKE to bring your image into Convert.

5. Convert should now display the DCTV logo on its display. A picture that looks good in composite mode may not look as good when displayed in RGB. Here the Color appears a bit high. Click to the left of the slider for Color control until a -3 appears in the box to the right of the slider. Click Make to display the changes.

6. The picture has decreased color saturation but is still a bit bright. Set the Brite control to -2 and click Make to see the effect.

By now you should have a fairly clean picture on the Amiga display. Unless you've modified the settings it is a HAM picture with 4096 colors and could be used with any Amiga software that uses this format. Many programs, such as Deluxe Paint III, require that the image have 64 colors or less. Let's reduce the number of colors in our logo.

1. Click on Screen and bring up the Screen Mode menu. If your menu is set to the defaults it should indicate that the Mode is Lo Res, the size is a normal 320 X 200 and it is a HAM picture with 4096 colors.

2. Let's reduce the number of colors to 32. Click on the box next to 32 in the Colors area to make the change and then select OK to return to the Convert menu. When you return the Convert display will be black and MAKE will be flashing.

3. Select Make to display the logo in 32 colors.

While the image has taken on some graininess it is still a usable image and could be brought into a standard paint program for modification. You also could dither this image to see the effects dithering would have.

DITHERING THE IMAGE

1. Select Ordered under the Dither options and then Make to display the changes.

2. Repeat number 1 for Diffuse and Average. When you've examined these dither patterns, select Normal to return the logo to its original form.

Using the Color options on the right side of the Convert menu you can perform many special effects. Let reduce the number of colors used to see the effect it has.

1. Click to the left of the Colors slider until the number displayed is 25 and then press Make to display the changes. Notice that although we have reduced the number of colors from 32 to 25 the picture still has the basic colors of the original.

2. Lets reduce the colors down to 10 by clicking to the left of the colors slider until 10 is displayed. Press Make to display the changes. Notice that as we reduce the number of colors the image begins to flatten out, but even with 10 colors, retains the basic colors of the original image.

3. To see the maximum effect bring the colors slider all the way to the left. The number 2 should be displayed in the Colors status box. This will produce a basic two color image, which one would normally consider to be black & white. Let's make sure the image is black & white before we select Make.

4. Click on the color on the top left of the Color Wells on the right of the Convert menu. Notice that the color is now displayed in the area next to the KEEP and FREE buttons. Lets make this color white by sliding the Red, Green, and Blue sliders all the way to the right. A 15 should show in all of the status boxes next to the sliders when you're done.

5. Click on the color just below the one we've just turned white. Let's make this black by pushing the Red, Green, and Blue sliders to the left. A 00 should appear next to each slider.

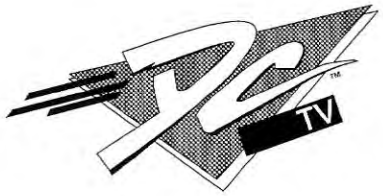
6. To make sure we keep these colors fixed, double-click on the KEEP button. A small dimple appears in each color indicating it has been selected. Now click MAKE to display the logo in black & white.

SCRATCHING THE SURFACE

Our intent with these tutorials was not to walk you through each and every feature in DCTV. If we did that, in all the myriad of combinations of functions available, you couldn't carry the manual you're now reading. Our intent is to provide you the basic skills necessary to begin producing DCTV art.

We've only scratched the surface of the possibilities available. Again, EXPERIMENT! Remember that if you don't understand something the Reference section of the manual will have a description of the item you're puzzled about.

Don't be afraid to try something new since, more than likely, the results will be interesting. Even if the results aren't what you expected, you've furthered your knowledge of DCTV and, even better, had fun while doing it!



SECTION 3

REFERENCE

DIGITIZE AND PROCESS

PAINT

CONVERT

DIGITIZE AND PROCESS

DCTV's built-in digitizer allows you to create DCTV art using your RGB video equipment.

Starting Up

Enter the Digitize and Process section of DCTV either by selecting Digitize or using the Amiga-D key shortcut from either the entry, convert or paint menus. The Digitize and Process page is displayed on your DCTV composite screen while a representation is displayed on the Amiga's RGB monitor.

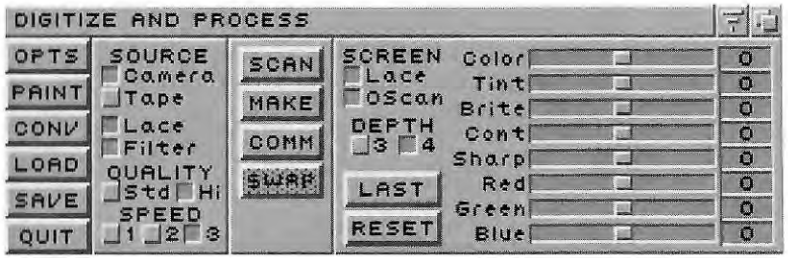


Fig. 12 Digitize and Process Page

The Digitize and Process Page

DCTV's Digitize and Process page is divided into four sets of tools, System, Image Capture, Image Control, and Image Processing.

SYSTEM TOOLS

In the left menu you'll find six buttons:

OPTS Selecting options brings up a sub-menu for selecting the operating parameters of DCTV. Available are options to shut-down Workbench under low memory conditions and to enable the swap page if enough memory is available. Selecting Save from the sub-menu records your choices for future use, while Use enables them for the current DCTV session. Cancel exits the sub-menu without changes.

Shortcut: Amiga O

Fig. 13 Options Requester

PAINT Paint moves you to the Paint section of DCTV.

Shortcut: Amiga P

CONV Conv is short for Convert and moves you to the convert section of DCTV.

Shortcut: Amiga C

LOAD Load an image into DCTV. Load will automatically sense the type of file you are loading and convert it to the proper format for DCTV display.

Shortcut: Amiga L

SAVE Save an image in DCTV RAW, IFF, or 24 Bit format.

Shortcut: Amiga S

QUIT Exit from DCTV to Workbench. If you select this requestor in error, cancel returns you to DCTV.

Shortcut: Amiga Q

IMAGE CAPTURE

The image capture tools control how your image is digitized and tells DCTV the type of video equipment you'll use. DCTV will capture images from any video source. In order for your image to be captured it must be free of movement for 6 to 10 seconds. Any video noise, such as that created by many consumer video decks when held in pause, will be picked-up in the image created by DCTV.

SOURCE

Camera Sets up DCTV to digitize signals from a color video camera.

Tape Sets up DCTV to digitize signals from a video tape, laser disc or a still video camera such as the Canon Xapshot or Sony Mavica.

Lace Enables an interlaced DCTV display.

Filter Sets up filters to decrease noise in your captured image.

SPEED

DCTV has three speed settings available. For a strong video source under normal conditions the proper selection would be 3. If your video source is less than perfect you will get better results using a setting of 2. If DCTV has difficulty recognizing your video source it will automatically step-down to a speed which better matches the video signal. The speed setting of 1 is recommended for use in developing special effects when used in conjunction with the pause control during scanning.

IMAGE CONTROL

DCTV's Image Control tools are used to digitize images and, with DCTV's Image Processing Tools, modify the image for use by DCTV Paint and Convert.

SCAN Selecting Scan begins the capture of an image by DCTV. After selection you may view and focus the video source's image on DCTV's composite display. As indicated on the standard Amiga display, click the left mouse button to begin capture or the right mouse button to cancel. During the scan you may abort by clicking the mouse button.

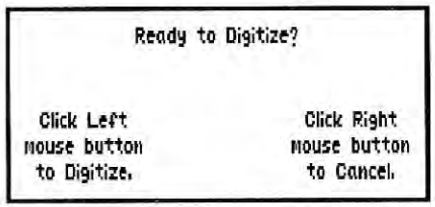


Fig. 14 RGB Digitize Requester

Clicking the left mouse button during scanning pauses and allows you to alter the scanned image.

This provides a way to introduce some interesting effects into the image. To resume scanning, click the left mouse button.

Shortcut: Amiga D or F1

MAKE Make modifies the image on the display when you've made changes to the parameters in DCTV's Image Processing tools. To remind you that you have modified the parameters, the Make button will flash until you've rebuilt the display. Make modifies only the screen display and NOT the data stored in DCTV's buffer.

Shortcut: Amiga M or F2

COMM Comm is short for commit. Selecting Comm modifies the data stored in the DCTV buffer. Comm permanently modifies the buffer data to match the settings of the current image display. If you select Comm by accident you will be presented with a requestor allowing you to cancel this action without affecting the buffered image data.

SWAP If you have enabled the Swap page you may move from the current screen to a second image screen. DCTV will hold a maximum of two separate images in memory. The Swap button will be unavailable and ghosted if you have not set the swap page option or do not have enough system memory available.

The minimum requirement for using swap is two megabytes of Amiga memory.

IMAGE PROCESSING

SCREEN

Lace Converts the display from a non-interlaced to an interlaced image.

OScan Converts the display to an overscan screen. Overscan extends the border of the image and is recommended when creating images for video use.

DEPTH Changes the number of bitplanes used by the image to either 3 or 4. Due to video's natural dithering you will observe very little difference in most images. However, when saving your work for use by other Amiga programs, the 4 bitplane selection will typically provide a better image.

LAST Swaps the current image parameters with those last used. Last may be used to quickly show the differences in an image resulting from changes to other Image Processing tools.

RESET Sets the settings to the default parameters found at program start-up.

Color Increases or decreases the saturation of color in the image. Along with the increase or decrease of color you may find that the amount of noise in the picture is increased or decreased correspondingly

Tint Like the hue or tint control on the television, tint controls the shades of color in the image.

Brite Increases or decreases the brightness of the image. Please note that this is a very active control with a small amount of change making a large adjustment in the image's brightness.

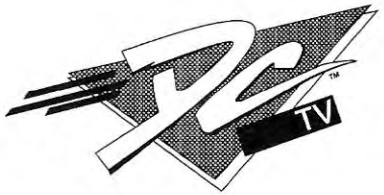
Contrast Enhances or decreases the difference between light and dark features of the image. Contrast can be used to bring out the edges and transitions within the image but may result in some loss of image detail.

Sharp Increase or decrease the sharpness of an image. This control can be used to enhance edges and bring out details in the image. Transitions between objects can be sharpened or softened by increasing or decreasing the control.

Red Increase or decrease the amount of red in the image.

Green Increase or decrease the amount of green in the image.

Blue Increase or decrease the amount of blue in the image.



SECTION 3

REFERENCE

DIGITIZE AND PROCESS

PAINT

CONVERT

PAINT

This section of the manual is intended as a reference guide to the tools and options available in DCTV Paint. The operation and options available are listed for each tool and mode, and some examples provided. More examples can be found in the Paint Tutorial.

NAVIGATING IN PAINT

You get to paint by clicking on the PAINT button, on the left side of the opening panel, also the Digitize and Convert panels. There are no pull-down menus in Paint. Everything is controlled through various panels, and subpanels. Each major tool, and each mode has its own panel.

You can get to DIGITIZE, CONVERT, or OPTIONS from PAINT by clicking on the appropriate gadget.

Mouse operations in PAINT are the same as they are throughout DCTV. All options are accessed through panels, and all operations are accomplished through the left mouse button. The right mouse button is used solely to remove panels or to bring them back.

Aborting Operations

Most PAINT operations can be aborted by pressing the spacebar. If the creation of an object - such as a rectangle - has already begun, it will be halted in progress at the point where it is when you hit the spacebar. If you are dragging out a line, curve, rectangle, ellipse, or filled shape, you can hit the spacebar before you release the left mouse button and the entire operation will be aborted.

THE PAINT PANEL

When you click on the PAINT button, the Paint Options screen will come up. This screen allows you to select the global paint options, as well as interlace and number of bitplanes.

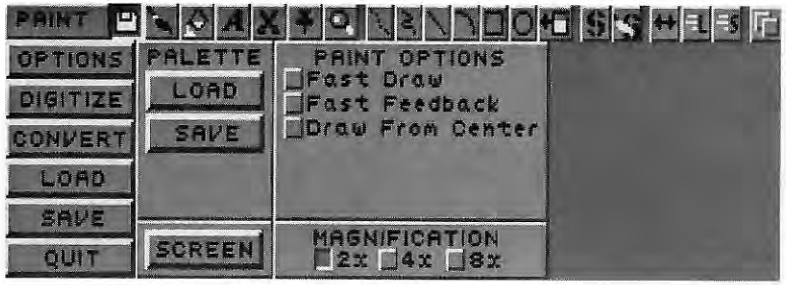


Fig. 15 Paint Options Page

SCREEN

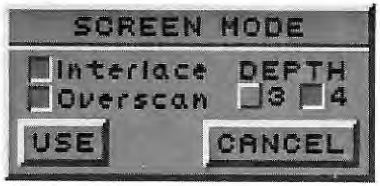


Fig. 16 Screen Modes

Before you enter Paint, you can specify the characteristics of the Paint Screen. These are:

Interlace When this button is in, interlace is on.

Overscan When this button is in, the Paint screen will be at full overscan.

Depth You may select either 3 or 4 bitplanes. The more bitplanes you select the more colors you will have available and thus require more memory.

Low Memory Situations

The above settings affect how much memory you will use when in Paint mode. Operating with Interlace, Overscan, and a Depth of 4 will use the most memory. If you are operating with less than 2 megabytes, you may need to conserve memory by selecting no interlace, no overscan, and a depth of 3. The more memory you have available, the more features of DCTV Paint you will be able to use. Operations like Stencil and Spare Page and even Clips are subject to the amount of available memory. If you run too low, you will not be able to use these operations.

Magnification You may select from 3 levels of magnification - 2X, 4X, and 8X. These levels govern the degree of magnification you will get when you enter Magnify mode in Paint, and may be changed at any time.

Fast Draw This option reduces the number of bitplanes DCTV uses to 3 during draw operations. When the Amiga operates in 4 bitplane mode, it may need to "borrow" cycles from the CPU to keep the screen refreshed. When this happens, there is less CPU time left over for other operations. Dropping to 3 bitplanes allows draw operations to proceed at full system speed.

Fast Feedback Because of the complexity of DCTV drawing operation, it is not always possible for the display to keep up with the mouse. Fast Feedback creates a dotted line that tracks the movement of the mouse, allowing you to have visual feedback on your current operation. The dotted line turns into a "marquee" when the mouse stops, and the operation completes when the mouse stops.

Draw from Center

This option affects the way ellipses and circles are drawn. Normally, when drawing an ellipse, the starting point becomes the outer edge after the figure is complete. When Draw From Center is selected, the starting point becomes the center, and the ellipse expands around that point.

Hide Pointer If you select this option, the mouse pointer will be hidden any time you perform a draw operation on the Paint screen. As soon as the left mouse button is released, after a Paint operation, the mouse pointer will reappear.

After you have made your selections on this panel, click on the Brush icon. This icon is second from the left, on the tool panel. This will take you into Paint Mode.

Shortcut: b

PAINT MODE

Clicking on the brush brings you into Paint mode and brings up the Brush panel. There are 7 different panels in Paint, serving different functions.

The Tool Bar

Fig. 17 The Tool Bar

This bar contains all the paint tools, as well as the Options and Screen-Top-Back gadget. Taken in order, from left to right, the tools are:

Options

Clicking on this gadget will take you to the Paint Options page.

Shortcut: Right Amiga-O

Brush

Clicking on this gadget will take you to Paint, from Options.

Shortcut: b
See: Brush Panel

Flood Fill

Clicking on this gadget will put you into Flood Fill mode. There are four types of Fills available: Solid, Pattern, Gradient, and Warp. Select these Fill types, with various options, from the Fill panel. Flood Fill works with stencil.

Shortcut: f
See: Fill Panel

Text 

The Text tool allows you to select a font (and its size) from any font directory, and lets you select the style and attributes of that font as well. All controls for the Text tool are on the Text panel, which comes up automatically when you select the Text tool. Text works with stencil.

Shortcut: t
See: Text Panel

Clip 

This gadget allows you to "cut" an area from your graphic, and brings up the clip panel. This tool works with the draw mode you have selected. If you have selected continuous freehand draw, you can draw a freehand line around the area to be cut. When the left mouse button is released, that region will be cut. If you are in rectangle mode, you will be drawing a rectangular region to be clipped. Circle/Ellipse mode allows you to clip elliptical or circular regions. Once you have cut a clip, you are put into Tack mode.

A clip can be "stamped" anywhere on the screen. Once you have cut a clip, you can resize it, flip it, rotate it, shear it, and warp it. All the options associated with clips are available through the Clip panel, discussed later.

Shortcut: c
See: Clips Panel

Tack 

Clicking on this gadget puts you in Paste mode. Once you have clipped a region, Paste mode allows you to place it anywhere on the screen. Click on the region you have clipped (it will be identified by a "marquee" line) and, holding the left mouse button down, move the mouse until the clip is where you want to paste it. If you hold the mouse still, the clipped region will be drawn - temporarily - on the screen. Move the mouse, and the clip will be removed.

Clicking on the brush gadget will take you out of paste mode. You may return to paste mode at any time, and if you have not cut out any other clips, your last clip will return to the screen.

Shortcut: p
See: Clips Panel

Magnify: 

When you click on the Magnify gadget, a marquee square will be displayed on the screen. This square indicates the area to be magnified, and its size will be based upon the magnification setting you have selected in Paint Options. (You may return to Paint Options at any time to change this setting.)

You may move this square with the mouse to the area you want to magnify. When it is in position, click the left mouse button and that region will be magnified. Click again on the Magnify gadget to exit Magnify mode.

Shortcut: m

The Drawing Tools

Dotted Freehand Line

When you click on this gadget, you are put into Dotted Freehand Line Draw mode. When you draw in this mode, you are actually laying down a series of dots. If you move the mouse slowly, the dots will be spaced close together, and will form a solid line. The faster you move the mouse, the further apart the dots will be spaced.

Shortcut: s

Continuous Freehand Line

In this mode, DCTV will track the mouse as closely as possible, and will draw a solid line. It is likely that you will be moving the mouse faster than DCTV can do the calculations necessary to create the line, so it's a good idea to have Fast Feedback selected.

Shortcut: d

Straight Line

When you select this gadget, you will be in Straight Line mode. Click the mouse once to specify the start of the line, and move the mouse to the end-point of the line. DCTV will display a "rubber band" to show you where the line will be drawn. When you are satisfied with the line, click the left mouse button again, and the line will be drawn.

Shortcut: v

Curve

Clicking this gadget places you in Curved Line mode. In this mode, you can draw lines ranging from simple arcs to sinusoidal curves. Curves are defined by four points - two end points, and two control points. By creating these points on the screen, you define a "cage," within which the curve is drawn.

Hold down the left mouse button to start the curve. The starting point is the first endpoint. Now, move the cursor to the other end of your desired curve. When you release the mouse button, you will have created the second endpoint for the curve. (You'll have a straight line at this point, as indicated by the marquee line. It will turn into a curve when you define the control points.) Move the cursor around the screen. You'll notice the marquee line forming a curve in response to the movement of the cursor.

You have a choice at this point: You can click the left mouse button at any desired position, and the curve - with only one control point - will be drawn. You can create a second control point by holding

down the left mouse button. The first control point is created when you press the left mouse button; the second control point will be created when you release the mouse button.

Bezier curves - the type of curves we are creating - can be a little difficult to understand. If you can visualize the curve as conforming to the shape of its "cage" then these curves will be easier to understand.

You also can draw closed curves by clicking once at the start of a curve and releasing the left mouse button. Then, hold the mouse button down, move to the mid-point of your curve and release the button. You will get a kind of "tear drop" shape from this operation.

Shortcut: q

Rectangle 

This tool allows you to create rectangular shapes. Hold down the left mouse button, and drag out the shape in any direction. When you release the button, your rectangle will be drawn.

Squares can be drawn by holding down the ALT key while dragging out the rectangle.

Shortcut: r

Ellipse 

This tool allows you to create circles and ellipses. Hold down the left mouse button, and drag out your shape in any direction. This tool draws from the edge of the ellipse, not the center. When you release the button, the ellipse will be drawn.

Circles can be drawn by holding down the ALT key while dragging out the ellipse.

Shortcut: e

Draw Filled 

Clicking on this gadget affects the way Continuous Draw, Straight Line, Curve, Rectangle, and Ellipse operate. The Rectangle and Ellipse tools will now draw filled shapes. The Straight Line tool becomes a Filled Polygon tool, and the Curve Tool creates filled, amorphous shapes. The Rectangle and Ellipse tools operate the same as before, but the Straight Line and Curve Tools behave differently.

When you create a filled shape, it will be filled in a manner determined by your selection in the Fill panel. The default setting for Fills is Solid.

Shortcut: D
See: Fill Panel

Filled Line
In this mode, the Line Draw tool becomes a Polygon tool. Click once to start the line, and - holding the left mouse button down - move the cursor to the next vertex in your desired shape. Release the left mouse button and the first side will be estab-

lished. Move the mouse to the next point and click once. Repeat this for every additional side you desire. You will notice that the cursor is "rubber-banded" to the origin, so that your shape is always enclosed.

When you reach the final point in your shape, click the left mouse button twice. Your figure will be drawn and filled in.

Holding down the ALT key during this operation will only allow you to draw lines in increments of 15 degrees.

Shortcut: V

Curve
As with the Straight Line tool, each click will create another "corner" for this shape. Actually, these corners are anchors. The shape will continue to curve around the midpoint you specify, but the line will now flow between your starting point and the last anchor.

Shortcut: Q

Filled Ellipse
The Ellipse tool, in Filled mode, behaves the same as it does in outline mode. Click the left mouse button once to start the shape, hold it down, and move the cursor outward from the origin. When you have completed the desired shape, release the mouse button and the filled ellipse will be drawn.

Shortcut: E

Filled Rectangle
The Rectangle tool behaves identically in Filled mode as it does in Outline mode. Click the left mouse button once to start the rectangle, hold it down, and move the cursor outward from the origin. When you have achieved the desired shape,

release the mouse button and the filled rectangle will be drawn.

Shortcut: R

Stencil 

Clicking on the Stencil gadget turns the stencil on. (When the Stencil button is depressed, the stencil is on. When the Stencil button is out, the stencil is off.)

Shortcut: ` (Accent Grave)

Stencil Draw 

Stencil Draw mode is where you create your stencil. A stencil is a one-bitplane mask which "protects" anything under it. When you create a stencil, you are describing areas on the screen that cannot be painted over. (You can think of the paint you are laying down on the screen as masking tape.) The controls for Stencil attributes are all found on the Stencil panel, which is brought up when you click on STENCIL on the attributes selector bar..

Shortcut: ~ (Tilde)
See: Stencil Panel

Swap Page

If you have set "spare page" as your global option, clicking on this gadget will swap your current screen with the spare page.

Shortcut: j
Copy to Spare: J

Quick Save

The Quick Save gadget allows you to save the current picture immediately. It will be saved to the device and directory you have specified in the Paint Options section.

Shortcut: S

Quick Load

The Quick Load gadget will load the picture saved in the Quick Load buffer. Clicking on the Abort gadget will stop this operation.

Shortcut: L

Screen To Back

This gadget sends the DCTV screen to the back.

Shortcut: Left Amiga-n

THE PALETTE PANEL

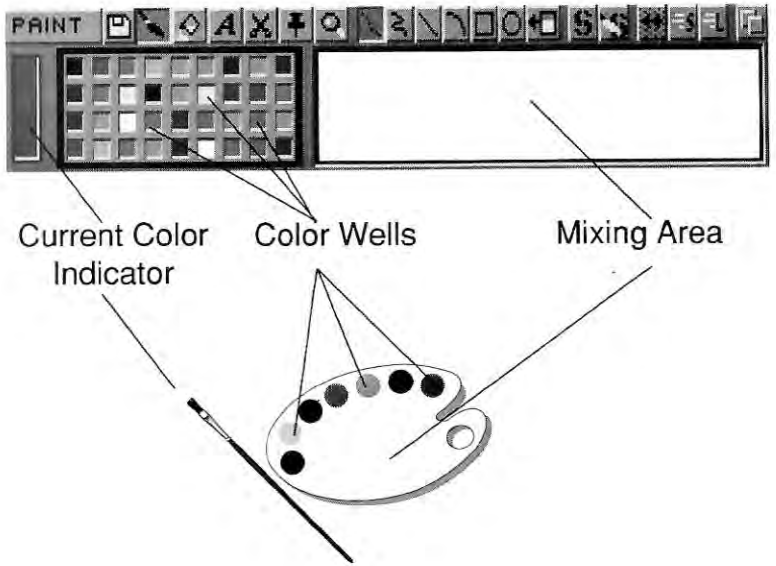


Fig. 18 The Palette Panel

Current Color:

This bar will show the color you have currently selected. As you change colors, either by selecting a color from the color slot area, the screen, or by creating one with the color controls, this indicator will change. Clicking on this indicator will cause the artist's palette to fill with the current color.

Color Wells These 36 wells hold the colors of your choice. When you first run DCTV, they will be filled with the default colors. You may replace any of these colors choosing a color, holding down the shift key, and clicking on the desired well.

Artist's Palette

This is a "mixing area" for your colors. You can Use this area the same way an artist uses the palette. Blend colors here, until you get the results you like. Then, while holding down the shift key, click on the desired color. Your brush will now use that color.

THE BRUSH PANEL

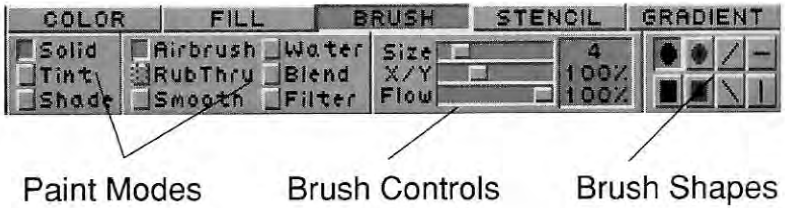


Fig. 19 The Brush Panel

Size The brush size gadget is a slider that allows you to select from 20 different brush sizes. Moving the slider to the right increases the size of the brush.

X/Y This gadget controls the aspect ratio of a brush, its vertical size with respect to its width. When the slider is set to 100%, the brush is as tall as it is wide. At 200%, the brush will be twice as tall as it is wide. At 50%, it will be half as tall as it is wide. The choices range from 50% to 200%, in increments of 1%.

Flow This slider controls the rate at which paint is applied to the canvas (screen). If you think of the brush as an airbrush, this control would let you lay down anything from a fine mist to a heavy layer. It operates differently according to the mode you have selected. In Solid mode, it controls the luminance, value, or component (R,G,B or C,M,Y) of

the color. If you are using the RGB color control, you would notice that at a flow rate of 100%, our red had an R component of 255. At 75%, the R component drops down to about 190. At 50%, the R component will be about 126.

Each time you make a pass, if the flow rate is set to something less than 100%, you will build up the color to a maximum of 100%. Also, when the flow rate is less than 100%, any color placed over another will not cover it completely. (The effect is similar to painting a darkly-colored wall with a light paint. It takes a thick coat to cover the old color completely.)

Paint Modes

There are 9 paint modes in all. These are divided into three effects (Solid, Tint, and Shade) and six styles (Airbrush, Rub Thru, Smooth, Water, Blend, and Filter).

Solid This is the classic paint mode. You select a color, and use it to paint on the screen. The "paint" is applied at a rate determined by the Flow setting. Your paint will be "thinned" at Flow settings of less than 100%, so how well you cover colors already on screen is dependent upon the Flow setting.

Shortcut: F1

Tint In tint mode, the color you are painting with is used to modify colors already on screen. The color component, chrominance, of the color you are using replaces the chrominance of the color you paint over. The luminance, or level of brightness, remains intact. Tint mode leaves the characteristics of an image intact, while changing the colors. For example: A black-and-white picture lacks Chrominance. There is only Luminance. Details

are distinguished by their levels of brightness. In Tint mode, you can "colorize" a black-and-white picture by using a particular color to add chrominance to the luminance already present. The chrominance of your brush will be applied to the screen colors in direct proportion to the flow rate. A flow rate of 100% will transfer all the chrominance from your brush to the screen colors, while a flow rate of 50% will transfer only half the chrominance. (The effect is similar to thinning the pigment you're using to dye something. Use less, and the effect is diminished.)

Shortcut: F2

Shade

Shade is the opposite of tint. In shade mode, you modify the luminance of a picture, while the color remains intact. If you have selected white, any color you paint over will become brighter. Selecting a color with a lower luminance value - black, for instance - will cause anything you paint over to become darker. Like Tint, the amount of luminance information transferred from the brush to the screen will depend upon the Flow setting. A setting of 100% will transfer all the information, while a setting of 50% will transfer only half.

Shortcut: F3

Airbrush

Airbrush is the default painting mode. The airbrush has a continuous supply of paint, and deposits it directly on the screen, at a rate determined by the flow setting. Airbrush, by itself, does not modify any paint already on screen.

Shortcut: F4

Watercolor

In Watercolor mode, your brush is charged with a finite amount of paint. As you paint a line, the color will thin and eventually run out just as a real brush would. The Flow setting determines the amount of paint on the brush. At 100%, Watercolor mode behaves like Airbrush mode. As you reduce the setting, your paint runs out more quickly. The brush used in Watercolor mode is permanently "wet." After the initial charge of paint is gone, Watercolor mode behaves just like Blend. The brush will continually "pick up" some paint that is underneath it and mix it with whatever colors it encounters. Again, the degree to which this happens is determined by the Flow setting.

The effects available in Watercolor mode are what you would expect if you were really working with watercolors. This mode allows you to create lines that soften, and regions of color that vary in intensity.

Shortcut: F5

Blend

Blend mode allows you to mix adjacent colors. The area underneath the brush is examined, and is "mixed" with the current brush color, according to the Flow setting. When Flow is set to 100%, the brush color is fully mixed with the area under the brush. At 50%, only half as much color information would be taken from the brush.

Shortcut: F6

Smooth Smooth mode takes the area under the brush, divides it into cells, and examines the contents of each cell. Then, according to a preset algorithm, the colors in each cell are modified to match the average of the area. The extent of the modification depends upon the position of the cell. The overall effect of Smooth is to soften areas of color transition.

Shortcut: F7

Rub Thru Rub thru allows you to remove part of the main picture, replacing it with the same region from the spare page. You may use Rub Thru with the other features of DCTV Paint - like variable Flow rates - for some spectacular effects.

Shortcut: F8

Filter Filter mode allows you to modify your image so that it will better conform with the characteristics of NTSC video. While an image digitized with DCTV will follow NTSC rules, it is possible to create or import an image that will contain color transitions that just can't be done with video. These transitions can result in false colors, fringing, banding, and other undesired effects. In Filter mode, the area under the brush will be examined, and Paint will attempt to modify any "illegal" transitions it might find. A full explanation of NTSC video can be found in Appendix B.

Shortcut: F9

Brush Shapes

The section of the Brush Panel to the far right contains eight gadgets, each of which represents a brush. The image on each gadget shows the shape of the brush you will get by clicking on that gadget.

Circle Selecting this brush will give you a circular brush.

Square This brush is shaped like a square.

Cone The Cone brush gives the 3-D effect of a cone, as seen from above. This brush is most heavily shaded in the center, with the color gradually tailing off toward the perimeter.

Pyramid The Pyramid brush gives the 3-D effect of a pyramid, as seen from above. Like the cone brush, the color is concentrated in the center region and tails off toward the perimeter.

Diagonal1 This selection gives you a brush shaped like a forward slash.

Diagonal2 This diagonal brush runs in the opposite direction like a backward slash.

Horizontal This brush is a horizontal line.

Vertical This brush is a vertical line.

COLOR PANEL

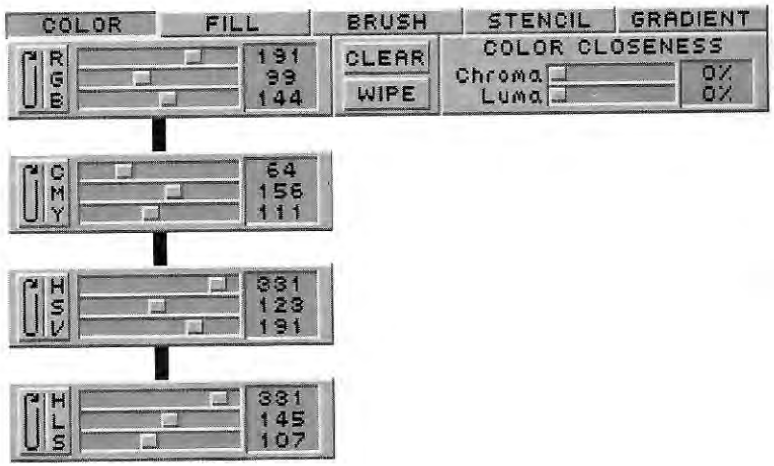


Fig. 20 The Color Selector

Color Selector

The color selector has four modes - RGB, CMY, HSV, and HLS. Each of these modes allows you to create any of 16,777,216 possible colors, and each mode gives you a different way to do it. Each tool has three sliders, and each slider (except hue, which has 360 degrees) has 256 steps, 0-255.

RGB The three sliders on the RGB gadget allow you to set a color based on the Red, Green, and Blue components. Red, Green, and Blue are "additive" colors.

CMY The three sliders on the CMY gadget allow you to set the Cyan, Magenta, and Yellow components of your color. These colors are the "complements" to Red, Green, and Blue, and used primarily in printing. Cyan, Magenta, and Yellow are "subtractive" colors.

HSV These sliders allow you to select a color according to its Hue, Saturation, and Value.

The **Hue** slider allows you to step through a color wheel, one degree at a time. There are 360 possible settings for this slider.

The **Saturation** slider allows you to control the amount of color present. A small level of saturation results in a pale, washed-out color; increasing the amount of saturation gives you a more vivid, intense color.

The **Value** slider allows you to set the reflected luminance of your color. This control is not the same as the luminance control on the HLS gadget. Reducing the amount of Value present in a color is similar to dimming the lights in a room. The color will go from full intensity to black as Value is reduced.

HLS These sliders allow you to create a color according to its Hue, Lightness, and Saturation. This control differs from the HSV gadget in the function of the Luminance slider.

The **Hue** slider allows you to step through a color wheel, one degree at a time. There are 360 possible settings for this slider.

The Lightness slider controls the amount of lightness of a color. Unlike the Value slider, this control allows you to set the "temperature" of a color. You can think of this slider as adding white to a color. At full value, the color will be white. At the lowest setting, your color will be black. The "pure" value of your color is reached when this slider is in the middle.

The Saturation slider allows you to control the amount of color present. A low level of saturation results in a pale, washed-out color; increasing the amount of saturation gives you a more vivid, intense color.

Screen Clearing

CLEAR Clicking on the CLEAR gadget will clear the Artist's Palette to the current brush color. Holding down the SHIFT key while clicking on CLEAR will clear the screen to the current brush color.

Shortcut: K

WIPE Clicking on the WIPE gadget will fill the Artist's Palette according to the current Fill mode. Holding down the SHIFT key while clicking on WIPE will fill the screen according to the current Fill mode. If you have selected Solid fill, the screen (or palette) will be filled with the current color. If you have selected Gradient, the fill will be governed by your Gradient settings. Any Fill mode is valid for a wipe operation.

Shortcut: W

COLOR CLOSENESS

Color closeness allows you to define a range of values that will apply to Stencil.

Chroma This is the color component of the video signal. Use this slider to specify the percentage by which the chrominance component may vary from the selected color and still fall under the Closeness umbrella.

Luma This is the light component of the video signal. Use this slider to specify the percentage of the luminance component may vary from the selected color and still fall under the Closeness umbrella.

By using the Chroma and Luma settings together, you can tell the system "Consider any color that is about this blue, and about this shade to be this color." Note that there are certain combinations of colors that are too extreme to fall under the Closeness umbrella, even with Chroma and Luma settings of 100%.

See Stencil Panel and Fill Panel for more detail on the use of Color Closeness.

THE FILL PANEL

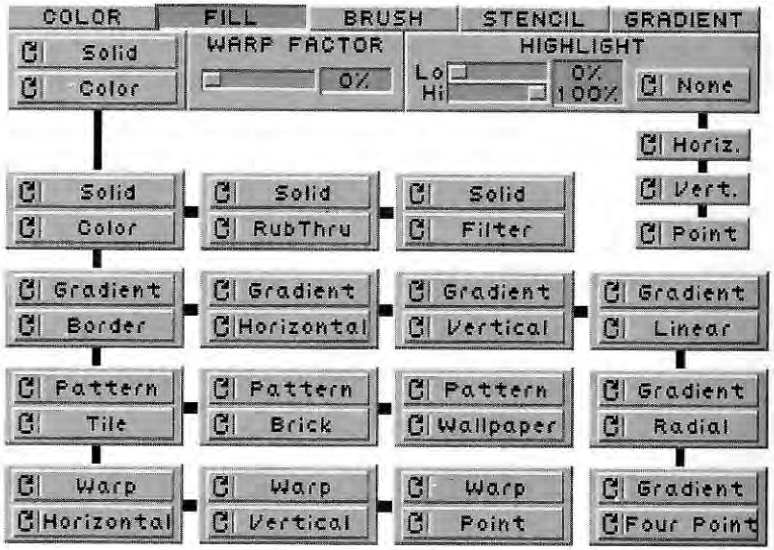


Fig. 20 The Fill Panel

There are two general types of fills. One is the kind that occurs in Filled Draw mode, and the other is a fill that is applied to a region with the Flood Fill tool. In Filled Draw mode (Filled Rectangle, Filled Ellipse, etc.) an object is automatically filled when it is created. When you use the Flood Fill tool, you specify an area with the stencil that is to be filled. Flood Fill arbitrarily fills any area not protected or bounded by the stencil.

Type of Fill

Solid

Color The Solid Fill option will flood-fill a region with the current brush color.

Rub Thru

This mode will fill your shape with information from the spare page. (You must have a spare page, of course, to use this mode.) This mode works with the Flow Rate setting. A Flow Rate of 100% will rub an opaque image through. At lower settings, the image will become more transparent, allowing more of the existing background to show through.

Fill Directions: None.

Filter This choice will apply filtering to the area that you specify.

Gradient

Gradient Fill will flood-fill your shapes with the gradient pattern you have defined in the Gradient section.

Gradient Fill Directions

Border

The Gradient pattern will follow the contours of the border of your shape.

Horizontal

The Gradient pattern will be applied horizontally. The color on a particular scan line will remain the same (from left to right) but will change as you proceed up or down the screen.

Vertical

The Gradient pattern will be applied vertically. The color will remain the same on any vertical line, but will change as you move to the right or left.

Linear

The Gradient pattern will be applied at any angle you specify. A Marquee will be drawn on the screen. Hold the left mouse button down and swivel this line with your cursor until it is at the angle you want, then release the mouse button. The Gradient will then be drawn, at the same angle as the Marquee.

Radial

The Gradient pattern will be applied as a series of concentric rings, beginning at the outside of a shape and proceeding toward the center.

Four Point

The Gradient pattern will begin at the four "corners" of a shape - the topmost left point, the topmost right point, as well as the bottom left and right points - and will proceed toward the center of the shape.

Pattern

Pattern Fill will flood-fill your shapes with the current clip.

Pattern Fill Directions:

Tile

This mode will fill your shape with the existing clip, in tile fashion. The clip will be laid down, from right to left, in even rows and columns until the shape is filled.

Brick

Brick fills are similar to Tile fills, but each row is offset 50% horizontally with respect to the rows above and below just as in a brick wall.

Wallpaper

Wallpaper fill will "stamp" your clip in rows across the screen, from left to right. Because it is unlikely that multiple clips will exactly fill the width of a screen, some portion of a clip is normally left over. That portion will be carried over to the next row, resulting in a slight offset for each successive row.

Warp

Warp will apply perspective to the clip, as if the clip was being wrapped around a cylindrical or spherical object.

Warp Directions:

Horizontal

This direction will wrap a pattern around a horizontal cylinder.

Vertical

This direction will wrap a pattern around a vertical cylinder.

Point

A Point Warp will wrap a pattern around a spherical object.

Warp Factor

This control determines how severely the fill pattern will be bent or curved. You might imagine the same size clip being warped to form a small sphere and a large sphere. The clip will be curved more when it is warped in the shape of a small sphere. In DCTV terms, this warp would have a greater depth than the same clip warped in the shape of a larger sphere.

Highlight

When you use highlight, a fill will have its transparency varied to simulate the effect of light being cast on the object. You can choose from horizontal, vertical, or point highlights. A Horizontal highlight will give the appearance of an object that is illuminated by light from the side. A Vertical highlight gives the appearance of an object that is illuminated from above (or below). Point highlight lets you set a single point at which light strikes the object. The range of the highlight - from its least transparent portions to its most transparent - is controlled by the Lo and Hi sliders.

Lo The Lo control sets the low end of the transparency scale as it applies to Highlight. This control will determine how transparent the most transparent portion of a highlighted fill will be.

Hi The Hi control sets the high end of the transparency scale as it applies to Highlight. This control determines how transparent the highlight will be at its least transparent point.

The Hi point of a highlighted fill is the highlight itself, and the Lo points are the outer boundaries of the highlight. If you reverse the normal settings - set Hi to 0%, or some low percentage, and set Lo to 100%, or some high percentage, the behavior of highlight reverses. The Highlight point will now be the most transparent, and the outer boundaries will be the least transparent.

Highlight Direction:

None No highlight.

Horizontal

The highlight will range from the highlight point outward, horizontally. The highlight point is set by placing the cursor at the desired highlight point and double-clicking the left mouse button.

Vertical

The highlight will range from the highlight point to the upper and lower boundaries. As with Horizontal, you set the Highlight point by double-clicking the left mouse button at the desired location.

Point

When you select Point highlighting, a line will appear on the screen. Drag this line to the point where the highlight should be, and double-click. This area - the point - will be the focal point for the highlight.

THE STENCIL PANEL

Fig. 21 The Stencil Panel

Stencil Brush

Clicking on the Stencil Brush gadget puts you into Stencil Draw mode. From this point on, whatever you draw will alter the current stencil, or create one, if none exists. You may add to the stencil, or delete from it.

SET COLOR

This gadget allows you to define the color which will comprise your stencil. When you click on this gadget, the current color will become the Stencil color. This color is for your benefit only, to help differentiate the stencil from the image. It has no effect upon the stencil. You should choose a stencil color that will contrast with your image, to make the stencil easier to see. You can change the color

of the stencil at any time by selecting (or creating) a color and clicking on the Stencil Color gadget.

FREE Clicking on this gadget will free the current stencil mask from memory.

CLEAR Clicking on this gadget will clear the current stencil mask.

INVERT Clicking on this gadget exchanges the non-stencil areas with the stencil areas.

VISIBLE Once you have created a stencil, you may make it visible by clicking on this gadget.

TRANSPARENT
Normally, the stencil mask will be completely opaque, and will mask anything that appears underneath it. If you select Transparent, the stencil mask will still be visible, but will be transparent, allowing you to see what's under it.

USE CLOSENESS
This mode allows you to specify a range of color to which the stencil will apply. The settings on the Color Closeness sliders govern the range to which Closeness applies.

The central color in the Closeness range is the current brush color. Once you have selected a brush color, the stenciling operation will only apply to colors within that range. (If you are in ADD mode, the stencil mask will only be applied on top of colors in the Closeness range. The stencil mask will not be applied over colors outside this range.)

ADD Everything you draw after clicking on ADD will be added to the stencil mask.

DEL Everything you draw after clicking on DEL (for Delete) will be subtracted from the stencil mask.

LOAD Loads a predefined stencil.

SAVE Allows you to save the stencil you have created.

THE GRADIENT PANEL

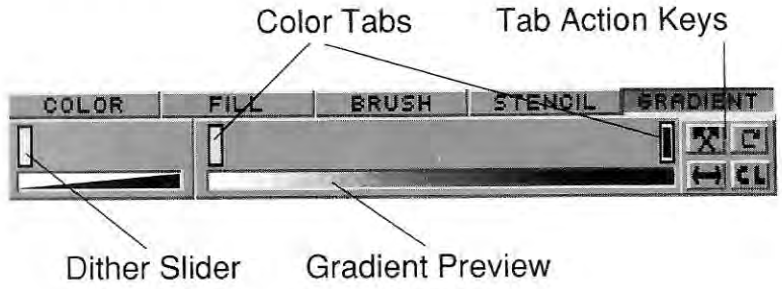


Fig. 22 The Gradient Panel

Gradients are one of the Fill choices. Gradients consist of transitions from one color to another. The Gradient panel allows you to specify the manner in which a gradient is created, what colors are used, and how the transitions occur. Gradients are set by a series of color tabs. The gradient will range from the color indicated by one tab to the color indicated by the next, and so on. For example: If you have set three tabs - one red, one yellow, and one blue - the gradient will range from red through yellow and on to blue. The transition will be smooth, unless you have indicated that a particular transition should be abrupt. You may use as many as 25 transitions in a gradient. Of these 25 tabs, you may define as many as 23 as "double" tabs. (The end tabs are always singles.)

The Gradient Panel allows you to define and create the Gradient. To use gradients, you must select the Gradient option from the Fill panel. (To reach the Fill panel, click on the gadget labeled "FILL.") The Fill panel also will allow you to select how the gradient is applied. You may select from Horizontal, Vertical, Both, 4 Point, and Radial.

Gradient Preview Bar

This area allows you to preview your gradient. When you click on this bar, the gradient will be calculated and will be displayed in this area.

Setting Color Tabs

Color tabs are set by clicking in the area above the gradient indicator. You may select a color in any of the usual ways: Clicking on a color in the color slot area, or holding down the shift key and clicking on a color in either the artist's palette area or the screen, or you may create a color with any of the color tools. Once you have the desired color, move down to the Gradient panel and click where you want to place the tab. Tabs may be moved, once they are placed, by clicking on them, holding down the mouse button, and moving to the right or left. To remove a tab, click on it, hold the mouse button down, and move the tab off the gradient panel. When you release the mouse button, the tab will be removed.

You also may replace the color in an existing color tab by holding down the Shift key and clicking in the tab.

Abrupt Color Transitions (Double Tabs)

When the color tabs are placed horizontally, the transition from one color to the next will be smooth. If you place one color on top of another, and create a double tab, the transition will be abrupt. The color will change, at the double tab, from the previous color to the one you have just placed. (An abrupt tab is split into two parts. The transition (next) color appears on the bottom, and the previous color appears on the top.)

Setting The Gradient

Once you have arranged your color tabs, click in the Gradient Preview Bar. The gradient will be calculated, and the result will be shown in the bar.

Tab Action Keys

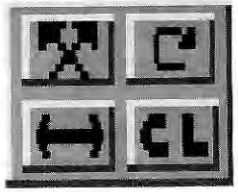


Fig. 23 The Tab Action Keys

These four gadgets will distribute your tabs evenly, reverse their order, clear them, or choose from four predefined gradients.

Flip Tabs

Clicking on this gadget will cause your tabs to be reversed horizontally.

Next Gradient

This gadget allows you to choose from four sets of gradients. Each time you click on this gadget, the next gradient from the list will be activated.

Distribute Tabs

Clicking on this gadget will cause your tabs to be evenly distributed through the gradient area.

Clear Tabs

Clicking on this gadget clears all tabs.

Dither Slider

This slider affects the dither, or the manner in which the colors mix from one gradient transition to another. When the slider is all the way to the left, the transition from one color to another will be smooth and orderly. The transition from red to yellow, for example, would proceed in smooth steps, gradually changing shade from red to orange to yellow. Moving the slider to the right increases the dither. This "scatters" the color change over a wider area.

For example: Take a screen area consisting of 8 scan lines. In the middle of this area, the color in a gradient changes from blue to green. We will assume that the boundary between blue and green runs vertically. With no dither, the change would occur right at the line, on every scan line. With dithering, the change will occur in a different, random place on each scan line. This might be to the right of the boundary, to the left of the boundary, or right on the boundary. The amount of dither determines how far from the boundary the outer "zone" of change is placed.

THE TEXT PANEL

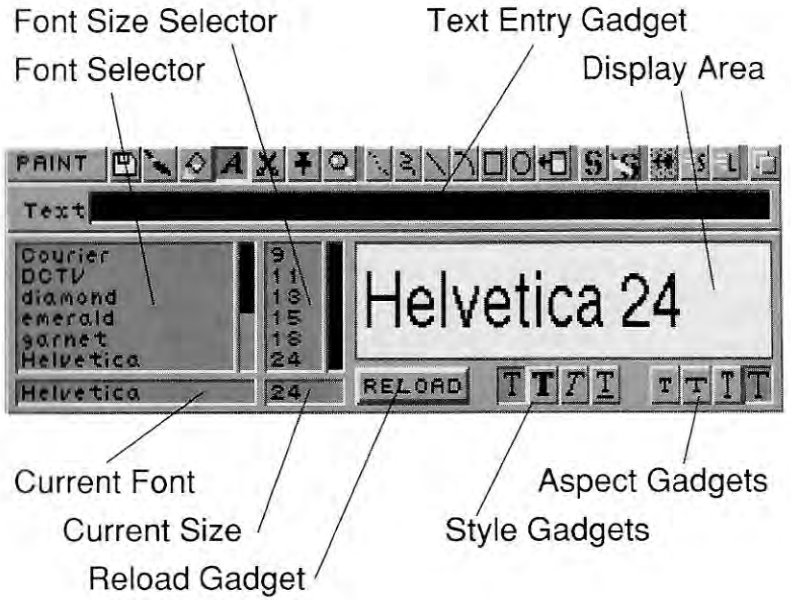


Fig. 24 The Text Panel

The text panel allows you to select a font and its size, set its attributes and appearance, and create a line of text to be placed on the screen.

Text Entry Gadget

This is the area where you will type the text you wish to place on the screen. When you have entered your text, hit RETURN. Then, select Paste mode, and click on the Stencil On gadget. A marquee will appear on the screen. You may place your text just as you would place a clip, by either clicking outside the marquee, or by clicking on the Paste gadget. Your text will appear as a stencil on the screen. (See Stencil Panel for more details on stencils.)

Font Requestor

The Font Requestor allows you to select a font (and font size) from the current FONTS: directory. If you need to specify a different fonts directory, you may do so from the CLI. Once you have changed the FONTS: assignment, return to the DCTV screen and click on the RELOAD gadget. Fonts will now be read from the new fonts directory.

The fonts will be read in from the Fonts: directory, and will be displayed in alphabetic order on the left side of the requestor. The available sizes for the selected font will be displayed on the right side of the requestor. The name of the currently selected font and font size appear below the requestor.

To select a font, position the cursor over the name of the font and click the left mouse button. Once you have done this, the information for that font will be read from the fonts directory. The available sizes for that font will appear in the right half of the requestor, and a sample of that font will appear in the Text Display window. You may select a different point size by positioning your cursor over the desired size and clicking on the left mouse button. The text in the Display window will be redrawn in the current size.

Below the Text Display window are two groups of gadgets. These gadgets control the appearance of the text. The four gadgets on the left are the standard Style gadgets. You may select Plain, or you may select any combination of Bold, Italic, and Underline. Click on any one of these gadgets to turn the option on, and click again to turn it off. Any selections you make will be reflected immediately in the Display window.

The four gadgets on the right control the size attributes of the typeface. You may select normal, wide, tall, or wide and tall. You may select only one of these options. Again, any selections you make will be reflected in the Display window. You may use size attributes in combination with style.

THE CLIP PANEL

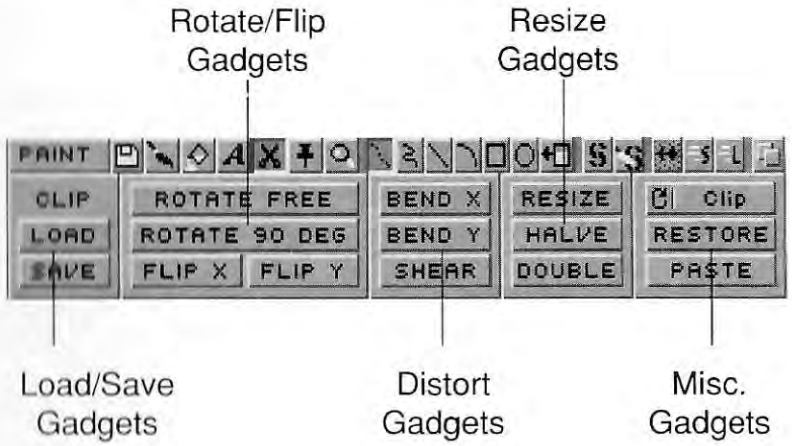


Fig. 25 The Clip Panel

LOAD

Clicking on this gadget will bring up a requestor that allows you to load a clip from disk or memory.

SAVE

Clicking on the SAVE gadget brings up a requestor that allows you to save the current clip to disk or memory.

ROTATE FREE

The ROTATE FREE gadget allows you to rotate your clip any amount around its center. When you click on this gadget, your clip will be bounded by a marquee. Move your pointer to any point on the clip, hold down the left mouse button, and move the pointer in a circular direction around the center of the clip. You will notice the marquee rotating with the movement of the mouse. When you're satisfied with the position of the clip, release the mouse button. The clip will be redrawn in its new rotated position.

ROTATE 90 DEG

This gadget will rotate your clip one-quarter turn clockwise. (Holding down the shift key when you click on this gadget will rotate your clip one-quarter turn counter-clockwise.) Each time you click on this gadget, the clip will be rotated an additional 90 degrees.

Shortcut: z

FLIP X

This gadget will "flip" your clip 180 degrees - reverse it - along the X axis. This creates a mirror image of the original clip.

Shortcut: x

FLIP Y

This gadget flips your clip 180 degrees along the Y axis. FLIP Y will, in effect, turn your clip upside-down.

Shortcut: y

BEND X

This gadget allows you to "bend" your clip any amount along the X axis. After you click on the BEND X gadget, a marquee will appear along the boundary of your clip. Move your pointer to the clip, and hold down the left mouse button. Then, by moving the mouse to the right or left, your clip will "bend" in the direction you move.

BEND Y

Like the BEND X gadget, this will allow you to bend your clip, but along the Y, or vertical, axis. After you click on the BEND Y gadget, a marquee will appear along the boundary of your clip. Move your pointer to the clip, and hold down the left mouse button. Then, by moving the mouse up or down, your clip will "bend" in the direction you move.

SHEAR

Shearing a clip is similar to bending it. It allows you to "tilt" your clip to the right or left, as if the clip was made up of slices stacked on top of each other.

RESIZE

Hitting the Resize gadget puts you into a mode that allows you to make your clip larger or smaller. You will see a "marquee" on the screen, forming the boundary of your clip. You resize a clip by holding down the left mouse button and dragging the mouse. If you drag away from the center of your clip, it will become larger. Drag toward the center, and it will become smaller.

If you hold down the ALT key during this operation, your brush will maintain the same aspect ratio while you resize it. That is, its height and width will remain in the same proportion. You can

press the ALT key at any time during a resize, or you can release it at any time. If you have the ALT key pressed when you release the mouse button, your resized clip will retain its aspect ratio.

HALVE

Clicking on this gadget will halve the size of your clip.

DOUBLE

Clicking on this gadget will double the size of your clip.

CLIP/TEXT

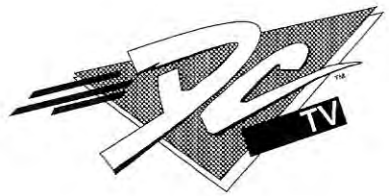
This gadget will let you cycle between a clip and a text block. When you select TEXT mode, this gadget will automatically switch to text. By clicking on it, you can have access to either your clip or your text.

RESTORE

The Restore gadget will restore your original clip.

PASTE

Clicking on the Paste gadget will paste, or tack, your clip at the position of the cursor.



SECTION 3

REFERENCE

DIGITIZE AND PROCESS

PAINT

CONVERT

CONVERT

DCTV's Convert offers an easy way to move your DCTV images to a format that can be used on a standard Amiga. Converting your art makes it available for use by other Amiga software or as a means to share your creations with friends who don't have the DCTV hardware.

Starting Up

Enter the Convert section of DCTV either by selecting "Convert" or using the Amiga-C key shortcut from either the StartUp or Digitize and Process or Paint menus. The Convert menu appears on the standard Amiga display. When using Convert no image appears on DCTV's composite display.

The Menu

DCTV's Convert menu is divided into four sets of tools, System, Image Processing, Image Control, and Color Processing.

SYSTEM TOOLS

On the left of the menu you'll find six menu buttons:

OPTIONS Options provides a sub-menu for selecting the operating parameters of DCTV. Available are options to shut-down Workbench under low memory conditions and to enable the swap page if enough memory is available. Selecting Save from the sub-menu records your choices for future use, while Use enables them for the current DCTV session. Cancel exits the sub-menu without changes.

Shortcut: Amiga O

DIGITIZE Digitize moves you to the Digitize and Process section of DCTV.

Shortcut: Amiga D

PAINT Paint move you to the Paint section of DCTV.

Shortcut: Amiga P

LOAD Load an image into DCTV. Load will automatically sense the type of file you are loading and convert it to the proper format for DCTV display.

Shortcut: Amiga L

SAVE Save an image or the image's palette in RGB IFF format.

Shortcut: Amiga S

QUIT Exit from DCTV to Workbench. If you select this requestor in error, cancel returns you to DCTV.

Shortcut: Amiga Q

IMAGE PROCESSING

Convert uses the same image processing controls that you find in the Digitize and Process section of DCTV. In fact, when you move your image from Digitize to Convert it will retain the same image processing settings.

Color Increases or decreases the saturation of color in the image. Along with the increase or decrease of color you may find that the amount of noise in the picture is correspondingly increased or decreased.

Tint Like the hue or tint control on the television, tint controls the shades of color in the image.

Brite Increases or decreases the brightness of the image. Please note that this is a very active control with a small amount of change making a large adjustment in the image's brightness.

Cont (Contrast) Enhances or decreases the difference between light and dark features of the image. Contrast can be used to bring out the edges and transitions within the image but may result in some loss of image detail.

Sharp Increases or decreases the sharpness of an image. This control can be used to enhance edges and bring out details in the image. Transitions between objects can be sharpened or softened by increasing or decreasing the control.

Red Increases or decreases the amount of red in the image.

Green Increases or decreases the amount of green in the image.

Blue Increases or decreases the amount of blue in the image.

Dither

Dithering is the process used to mix colors to produce a new color. DCTV offers three different dithering controls which use a distinct method for dithering the image. Since the results obtained by each method are dependent on the complexity of the image you are working with, some experimentation is required to determine which method best suits the situation.

None DCTV's default setting. No dithering of the image is performed.

Ordered Dithers using a regular pattern which is determined by how far the color being produced is from the data contained in the DCTV buffer.

Diffuse Dithers using a pattern which spreads out the colors.

Average Dithers using the average of the distance from the buffer data to the color being produced.

IMAGE CONTROL

Screen Screen provides a sub-menu for setting up the screen mode of your image. The sub-menu includes controls for setting the screen mode (Lo-resolution, High-Resolution, and interlaced Lo and Hi-Resolution), screen size, and the number of colors used by Convert's color palette.

Convert allows you to set the following non-interlaced screen sizes:

Lo-Res	320 X 200
Hi-Res	640 X 200
DCTV Lo-Res	368 X 241
DCTV Hi-Res	736 X 241
Custom	320-367 X 200-241

By selecting Interlace the following screen sizes are available:

Lo-Res	320 X 400
Hi-Res	640 X 400
DCTV Lo-Res	368 X 482
DCTV Hi-Res	736 X 482
Custom	640 - 736 X 400 - 482

The numbers provided for custom screen sizes represent the range of allowed inputs. Any screen size within the range may be assigned. Please note that if you select an exact screen size normally assigned to lo-res, hi-res or DCTV images, Convert will automatically deselect the custom option and select the appropriate type of image for the size you have input.

Color Color assigns the number of colors used by the Convert color palette. When using a high-res screen the maximum number of colors available is 16.

After completing your choices select OK to use these options or Cancel to exit the sub-menu without making changes.

Make Make modifies the image on the display when you've made changes to Convert's settings. To remind you that you have modified the parameters, the Make button will flash until you've rebuilt the display. Convert's Make function modifies the screen display.

Shortcut: Amiga M

Close Allows the RGB screen to be closed under conditions where system memory is critical.

Last Swaps the current image parameters with those last used. Last may be used to quickly show the differences in an image resulting from changes to other Convert settings.

Reset Sets Convert to the default parameters found at program start-up.

COLOR PROCESSING

Colors The Colors slider resets the number of colors used in the color palette which you set via the Mode menu. If you selected 4096 HAM under mode the maximum number of colors in the palette will be 16. If you selected 64 colors the maximum number of colors in the palette will be 32 which represent the base colors of the 64 color palette. Selecting color palettes of 2 to 32 colors via Mode provides the expected number of colors to be displayed here. The minimum number of colors you may set is 2.

No Color 0 When using a genlock the background video is displayed within the Amiga graphic through any area of the picture which uses Color 0, the color

represented in the top left corner of Convert's color palette. Selecting No Color 0 will ghost this color and provide an image that will not allow video to show through when using a genlock device.

Color Control The Red, Green and Blue (RGB) sliders are used to control the amount of each color in the selected color of the Convert palette. To select a color click the left mouse button on the color you wish to use. Use the RGB sliders to increase or decrease the amount of each color to create a new color for use in the palette.

Copy Copies the current color to another spot in the palette. When Copy is selected the cursor will have a "TO" attached to it until you select the spot where the color should be copied.

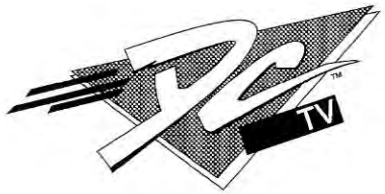
Swap Swap moves the color information for the currently selected color register to another register. As the name implies, the color information is traded between the two registers. After selecting Swap the cursor will have the word "with" attached to it until you select the color you wish to swap.

Keep Keep locks a color so that its color register is not changed when an image is rebuilt using the Make command. To keep a color select the keep key and click on the color you wish to keep. A dimple will appear in the selected color. Keep only affects the conversion process. You may use the color controls to modify a color even if it was selected to be kept.

To Keep several adjacent colors select the Keep button and hold down the SHIFT key while selecting the colors. After selecting the initial color you want to keep you only need to move the pointer over the adjacent color in order to Keep it.

To Keep all of the colors double click on the Keep button with the left mouse button.

Free Free unselects a color you selected to Keep. If several colors have been selected you may double click the free button to free all colors.



SECTION 4

APPENDICES

TROUBLESHOOTING

We designed this section to help you with any problems you encounter while using DCTV. We compiled this list of hints from the most common problems encountered while designing and testing DCTV and through our own analysis.

REPAIR PROCEDURE

If you find that your DCTV doesn't function properly, please follow these steps:

1. Find the symptom from the folowing list.

2. Try all the suggested solutions for the problem.

3. If DCTV still doesn't function properly, call Digital Creations customer support at (916) 344-4825. If, after talking with you, one of our representatives, determines that your DCTV needs repair you will be given an RMA (Return Materials Authorization) number.

4. Carefully package DCTV in its original packaging along with a note detailing the symptoms and your system configuration. Be sure to include your return address and phone number. When shipping your DCTV please insure it for its full retail value. Digital Creations will not be responsible for the cost of packages lost in shipment.

5. Send DCTV to:

Digital Creations
Customer Service, RMA (Your number goes here)
2865 Sunrise Blvd., Suite 103
Rancho Cordova, CA 95742

NOTE: We cannot accept packages without a proper RMA number on the address label. Nor can we estimate how long it will take to repair your DCTV. As a continuing commitment to our customers we will try to repair your equipment as fast as possible. We ship all repaired items via UPS Ground and COD any repair costs. If you wish faster shipping time please make arrangements with Cus-

tomer Service when you receive your RMA number. Any extra shipping costs will be added to the COD amount.

PLEASE NOTE: PRICES AND POLICIES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

ALTERNATE COMPUTER TEST

If DCTV doesn't appear to be working properly, trying it on a different Amiga can sometimes help isolate the problem. There is always a chance that the problem you've encountered may be caused by your Amiga. Known Amiga computer problems include defective power supplies, missing voltages on the RGB port where DCTV gets it power, and bad digital-to-analog converters (DACs) on the RGB port that would provide incorrect color information to DCTV. If your DCTV performs properly on another Amiga, it's likely that the first computer is suffering from one of these malfunctions. The solution is to have the Amiga checked by a qualified repair facility.

It's also important not to rule out the possibility of cables or accessories causing the problem. The general idea of testing with a second computer is to isolate the offending item through a process of elimination. Try different combinations of computers, cables, and accessories one change at a time until you isolate the problem.

TROUBLE SHOOTING HINTS

You turn on the Amiga and nothing happens:

DCTV may not be installed correctly. Verify that DCTV is connected properly to the RGB video port and the parallel port. **Connecting DCTV to any other port will cause damage to DCTV and your Amiga! Digital Creations cannot be held responsible for such damage.**

Your Amiga may not be getting power because the power cord is loose or not plugged in.

You don't see a picture on the NTSC (composite) monitor or the picture distorts or tears:

To output composite video DCTV must be connected to the RGB port of the Amiga via the RGB port cable on DCTV. Check to be sure that the DCTV RGB connector is connected properly to the Amiga's RGB port.

The cable may not be connected to the monitor's video in.

The monitor might not be set for composite display.

Your video cable may be damaged. Try another cable.

You may be trying to use DCTV with a television set. DCTV will not work directly with a television. A TV would require a composite video input on it if it were to work with DCTV. It would be possible to go to the video in on a VCR and use the antenna out to connect to the TV set.

You may not have properly calibrated DCTV's Pixel Adjust. Review the proper method of adjust-

ment contained in Section 1, Installation.

The Amiga's power supply might not be providing the proper voltages to DCTV. Have your Amiga checked by an authorized technician.

The composite color output of DCTV does not match the original colors of converted picture:

Your Amiga's RGB port may be faulty. Have the Amiga checked by an authorized technician.

Your DCTV's Tint Adjust may be out of alignment. Review Appendix F, Tint Adjust, for the proper method of calibrating the Tint Adjust.

Flashing rainbows are present in the composite picture or there is fringing of small details:

This is a problem with NTSC composite video. Use the filter settings when scanning to reducing fringing.

You may be using illegal NTSC colors. See Appendix B: -Working with NTSC video and DCTV.

The output of my video device is not being received by DCTV when I digitize:

Check to be sure that the cable connecting your video device to DCTV is attached to the video out of your device and the video in of DCTV.

Your video cable may be damaged. Try another cable.

Make sure that your DCTV unit is plugged in to the parallel port. This is the port that transfer data during digitizing.

There is no RGB output from the Amiga to my normal Amiga monitor:

With the Amiga off, check the RGB monitor cable to be sure it is properly connected to the pass-through on the DCTV RGB port cable.

When you start the DCTV you get a requester that says "PROBLEM Not enough memory to enter Paint page. Try another page"
or
"PROBLEM Not enough memory.

DCTV requires a minimum of one megabyte of RAM on your Amiga. If you have less than a megabyte installed DCTV will not operate.

You start DCTV and get a message that says "Missing DCTV font"
or
You get a message that says "Couldn't access iffparse.library"

DCTV's software requires that the *DCTV font* be present in the Amiga's font directory and the *iffparse.library* is in the library (LIBS) directory. If you have installed DCTV on your hard disk without using the install routine supplied on the program disk you may not have copied this information to your system. Please see the Installation section in the front of the DCTV User's Guide. For additional information consult your Amiga user manual for information on how to install fonts and libraries.

If you are running DCTV on an Amiga without a hard disk you have probably started your Amiga with a Workbench other than the one supplied on

the DCTV program disk. Either restart the Amiga using the DCTV program disk or consult your Amiga user manual for information on how to assign fonts and libraries. Your Amiga's font directory must be assigned to a font directory containing the DCTV font. Your Amiga's library directory must be assigned to a directory containing the iffparse.library.

2090A Owners

When trying to access a file (load or save) on/from the hard drive using the Amiga 2090A hard drive controller the hard drive seems to hang up.

There are known problems using the 2090A and overscan images. Some ways to avoid these problems are:

Get another controller

Don't attempt to load/save to the hard disk when in overscan. Turn off the overscan display from Paint's Screen Mode requester.

Put the DCTV screen to the back during saves or loads.

Important! Avoid rebooting while hard disk appears locked. It can cause a validation error on the hard disk. Try one of the above, first.

WORKING WITH NTSC COMPOSITE VIDEO AND DCTV

Unlike other Amiga paint programs that work with pixels, DCTV uses the characteristics of NTSC composite video to allow a 24-bit graphics display. While freeing the Amiga user from the constraints of a 4096 color palette, creating composite video art requires a basic understanding of the constraints of NTSC.

When painting with an Amiga program you do not need to be concerned with the colors you use since the Amiga, displaying in RGB video, can output fully saturated colors without any problems. NTSC, however, is very different. If you use fully saturated colors with NTSC video you may discover that the colors bleed and appear to move (+crawl+). Take a look at some of the graphics you see daily on television and you will probably find some that demonstrate these symptoms.

DCTV's software will attempt to correct these color problems through the use of built-in error detection and color correction. This is especially true when using the Digitize and Convert features of the DCTV software. When working in DCTV paint these problems may appear in spite of the software's correction abilities. Symptoms of color problems when using Paint would be horizontal lines in what should be a solid color, or bright colors that seem to move on the screen.

Fortunately there are ways to avoid these problems. When selecting colors try not to use those that have RGB values greater that 191 on the RGB scale in the colors menu of DCTV Paint. White is an exception and can typically use values greater than 191 without difficulty. In regular Amiga painting or rendering programs, keep the color levels at 12 or below to keep the colors "legal" for video.

Here are some additional tips for creating graphics that look good in video:

Don't create small patterns of alternating bright and dark colors. A checkerboard of black and white will cause rainbowing and artifacting.
Outline the edges of text with low saturated colors, that contrast with the text. As an example, red text looks better with a dark gray or white border.

Create smoother edges by using dark shades of the edge colors to create a strip next to them.

USING DCTV IMAGES WITH AMIGA SOFTWARE

Images you've scanned, painted or converted to the DCTV file format can be used with nearly all popular Amiga software. For example, you can use AmigaVison to build a multi-media presentation or DeluxePaint III to assemble a DCTV animation. The basic rule is that the software you use must be capable of displaying a normal Amiga high resolution display and the software cannot modify the picture as it's loaded.

Why can't the picture be modified as it's loaded? Good question. The answer is the basic key to how DCTV displays images in a composite format. A DCTV image contains control information on the top and left side which tells the DCTV hardware about the image. If this information changes, the image is no longer usable with DCTV. Programs such as the Art Department load an image and then convert it to another file format. In Art Department the image is converted to 24 bit IFF and, in the process, the DCTV control information is corrupted.

We do not recommend trying to use DCTV images in any paint package other than DCTV. If you're using another paint program, be careful not to paint in the top and left of the DCTV image. Beyond this basic caution, your creative abilities are the only limit! The key to working with DCTV images is experimentation.

Creating Animation With DCTV

DCTV can load images from standard Amiga software and convert them to the proper format for DCTV display. As a result, creating animation that will display in the full 24 bit resolution of DCTV adds only one additional step to the standard procedure for creating Amiga animation.

Using your favorite 2D or 3D animation software, (we've used DeluxePaint III, Disney Animation Studio, Sculpt, Turbo Silver and Imagine) create the frames for your animation. Load these frames into DCTV and save them in DCTV format. Then use your animation software to assemble the DCTV formatted images into the final

animation. When the animation runs, DCTV will recognize the control information and display it via the DCTV hardware.

An existing animation can be converted to DCTV format using the Animation Editor from Hash Enterprises. Animation Editor will break-up the existing animation into its component parts and save them as individual images. As before, load the images into DCTV and save them in DCTV format and reassemble the animation using Animation Editor or the other programs mentioned above.

Printing DCTV images

Using DCTV Convert you can convert DCTV 24 bit IFF images to standard Amiga formats and use them with standard Amiga software. This allows you to print DCTV pictures with any Amiga software capable of using standard IFF images. You won't, however, keep the resolution inherent to the 24 bit DCTV format.

To retain the images' quality you will need to use software that is able to load and print 24 bit IFF images. Some popular Amiga desktop publishing programs (Professional Page 2.0, Saxon Publisher, and PageStream 2.0) allow you to import 24 bit IFF images and print them at full 24-bit resolution.

Rendering Software

The ideal size for rendering seems to be 736 X 480. If you render to a 24-bit file you can load these 24-bit pictures in DCTV for a beautiful display.

Please check for a ReadMe file on the DCTV disks for additional information regarding converting and rendering .

KEYBOARD SHORTCUTS

DCTV offers a number of keyboard shortcuts to help speed your work. A more complete description of the program's function is contained in the DCTV Reference section of your manual. This list is provided for quick reference.

Note: Where a shortcut lists two keys, such as shift-F10 or Amiga-c, you must use BOTH keys to use the shortcut. Shortcuts referring to the Amiga key, such as Amiga-c, require that you hold down the right Amiga key (the A key to the right of the space bar) and press the second key.

GLOBAL SHORTCUTS

These shortcuts are used throughout DCTV:

Mouse..... Clicking the right mouse button will hide the pointer and menu. The left mouse button will hide the pointer and menu when clicked outside the DCTV menu page. When using DCTV Paint, however, the paint cursor remains visible when clicking the right mouse button and the left mouse button will not hide the menu.

F10 ..... Cycle control panel through three positions: park, hide, show
Shift-F10 ..... Make control panel completely visible
Space bar..... Abort operation
Escape ..... Abort operation

Two Option Requesters

Y ..... Responds to YES in a yes/no requester
N ..... Responds to NO in a yes/no requester
Return ..... Responds to the left (positive) requester option
Escape ..... Responds to the right (negative) requester option

One Option Requesters

Return or
Escape — End requester

ENTRY PAGE

Amiga-O .....Go to the Options Page
Amiga-C .....Go to the Convert Page
Amiga-D .....Go to the Digitize Page
Amiga-P .....Go to the Paint Page
Amiga-Q .....Quit DCTV

OPTIONS PAGE

Amiga-U .....Use the selected options
Amiga-S .....Save the selected options
Amiga-C .....Cancel any changes

CONVERT PAGE

Amiga-O .....Go to Options Page
Amiga-D .....Go to Digitize Page
Amiga-P .....Go to the Paint Page
Amiga-L .....Load an image into DCTV
Amiga-S .....Save an image
Amiga-Q .....Quit DCTV
Amiga-M .....Make picture

DIGITIZE PAGE

Amiga-O .....Go to Options Page
Amiga-C .....Go to Convert Page
Amiga-P .....Go to Paint Page
Amiga-L .....Load an image into DCTV
Amiga-S .....Save an image
Amiga-Q .....Quit DCTV
Amiga-D .....Scan an image into DCTV

Amiga-M .....Make image
Amiga-K .....Commit the image to the DCTV buffer
F1 .....Scan an image into DCTV
F2 .....Make image
F3 .....Commit the image to the DCTV buffer
F4 .....Swap the current image with the DCTV swap screen

PAINT PAGE

Amiga-O .....Go to Options Page
Amiga-D .....Go to Digitize Page
Amiga-C .....Go to Convert Page
Amiga-L .....Load an image into DCTV
Amiga-S .....Save an image
Amiga-Q .....Quit DCTV

F1 .....Solid
F2 .....Tint
F3 .....Shade
F4 .....Airbrush
F5 .....Watercolor
F6 .....Blend
F7 .....Smooth
F8 .....Rub Thru
F9 .....Filter

PAINT BRUSH KEYSTROKES

1 .....10% Flow Rate
2 .....20% Flow Rate
3 .....30% Flow Rate
4 .....40% Flow Rate
5 .....50% Flow Rate
6 .....60% Flow Rate
7 .....70% Flow Rate
8 .....80% Flow Rate
9 .....90% Flow Rate
0 .....100% Flow Rate
+ or = ...Make Brush Bigger
- .....Make Brush Smaller

SINGLE KEYSTROKE EQUIVALENTS

b ..... Brush
c ..... Clip
d ..... Continuous Freehand Line
D ..... Filled Continuous Freehand Line
e ..... Ellipse
E ..... Filled Ellipse
f ..... Flood Fill
h ..... Halve
H ..... Double
i ..... Zoom In
j ..... Swap page
J ..... Copy current screen to swap page
K ..... Clear picture
L ..... Quick Load
m ..... Magnify
n ..... Magnify Center
o ..... Zoom Out
p ..... Tack
q ..... Curve
Q ..... Filled Curve
r ..... Rectangle
R ..... Filled Rectangle
s ..... Dotted Freehand Line
S ..... Quick Save
t ..... Text
v ..... Line
V ..... Filled Line
W ..... Wipe Picture
x ..... Flip X axis
y ..... Flip Y axis
z ..... Rotate 90 degrees
` ..... Stencil
~ ..... Stencil Draw
! ..... Menu
> ..... Zoom In
< ..... Zoom Out

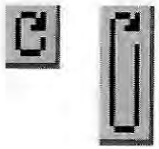
DCTV GADGETS & TOOLS

The following pages contain pictures, shortcuts, and names of all the gadgets and tools in DCTV. Descriptions or explanations are included when necessary.

Additional information can be found in the reference section.

	NAME	SHORTCUT
	Options	Right Amiga-O
	Brush/Paint	b
	Fill	f
	Text	t
	Clip	c
	Tack	p
	Magnify	m
	Dotted Freehand Line	s
	Continuous Freehand Line	d

	NAME	SHORTCUT
	Straight Line	v
	Curve	q
	Rectangle	r
	Ellipse	e
	Draw Filled	D
	Stencil	` accent grave (below ~)
	Stencil Draw	~ tilde
	Swap Page	j
	Quick Save	S

	NAME	SHORTCUT
	Quick Load	L
	Screen to Back	Left Amiga-n
	Cycle Gadget	none

Click to move to the next choice
Shift-click to reverse cycle direction

	Slider Gadgets	none

Click and hold. Slide right or left to adjust.
Single click left or right in bar will move slider in that direction.

	Ghosted Gadgets	none

This indicates that this option is not available because of insufficent memory or because this option has not been activated.

	Tab Action Keys	none

Top Left - Flip Tab
Flips tabs on X axis.
Top Right - Next Gradient
Cycles through predefined gradients.
Bottom Left - Distribute Tabs
Spreads tabs evenly.
Bottom Right - Clear Tabs
Removes all tabs.

TINT ADJUST

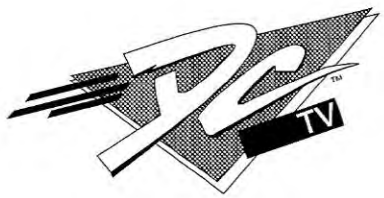
The tint adjust is factory set by Digital Creations and should not require further adjustment. Just in case you accidently change the adjustment, we have included a program to recalibrate the Tint control.

To reset the tint adjustment:

1. Connect a color camera to the DCTV RCA connector labeled Video In. Make sure that DCTV is connected to your Amiga's parallel port before beginning this adjustment.

2. Turn on the color camera.

3. On your DCTV program disk is a program called TintAdjust. Start TintAdjust from the Workbench by double-clicking the icon. Follow the directions in the program.



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